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Analysis of the recovery and resilience plan of Denmark

Accompanying the document

Proposal for a COUNCIL IMPLEMENTING DECISION

on the approval of the assessment of the recovery and resilience plan for Denmark

{COM(2021) 326 final}

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1. EXECUTIVE SUMMARY

The COVID-19 pandemic has had a major impact on Denmark, albeit less severe in terms of loss of output and jobs than in many other EU Member States. Denmark's real GDP contracted by 2.7% in 2020, with private consumption and exports seeing the largest decline. A resurgence of infections brought new lockdown restrictions early in 2021, yet GDP growth is set to recover from the second quarter of 2021 onwards. Substantial government support prevented a surge in unemployment and bankruptcies. Still, the unemployment rate increased from 5.0% in 2019 to 5.8% in 2020 but it is set to decrease gradually with the return of economic growth.

Government finances have been negatively impacted by the COVID-19 crisis. While there was a clear deterioration in public finances, the budget deficit of 1.1% of GDP in 2020 was the smallest recorded in the EU. Following a steep rise in the debt-to-GDP ratio in 2020, to 42.2% of GDP, due to one-off and denominator effects, the government debt ratio is expected to gradually fall to 38.8% of GDP by 2022.

Denmark is expected to receive approximately EUR 1.551billion (DKK 11.5 billion) from the EU's Recovery and Resilience Facility (RRF). Its recovery and resilience plan consists of 39 measures (6 reforms and 33 investments) divided into seven components, which can be linked with three main objectives:

(i) accelerating the green transition, including by supporting a green tax reform, investments in energy efficiency in buildings, sustainable road transport, a climate action plan for agriculture and green research and development;

(ii) supporting digitalisation, including a new digital strategy, SME digitalisation support and extending rural broadband coverage; and

(iii) increasing the resilience of the healthcare system, including digitalisation of healthcare, infrastructure and logistics support for critical medical products, and support for COVID-related research.

The estimated total cost of the recovery and resilience plan of Denmark is DKK 12 010 000 000, which equals EUR 1 615 267 709 on the basis of the EUR DKK ECB reference rate of 30 April 2021. This amount exclusively relates to expenditures and therefore excludes the awaited proceeds from the tax reform related to the Emission taxes on businesses that have been estimated to amount to DKK 410 000 000, which equals to EUR 55 142 361.

The plan contributes to the general objective of the Facility to promote the Union's economic, social and territorial cohesion and constitutes a balanced response to the six policy pillars referred to in Article 3 to the RRF Regulation[1].

The plan will make a significant contribution to Denmark's economic rebound and accelerate the green and digital transitions. It includes measures to frontload private green and digital investments and advance environmental, climate, energy and infrastructure projects. Targeted measures will support the reduction of greenhouse gas (GHG) emissions in sectors responsible for most of the emissions. The plan also includes reforms and investments that are set to promote the digital transformation across society and help improve the prospects for welfare and equality, growth and employment.

The plan is expected to boost Denmark's economic growth potential through increases in companies' productivity and competitiveness. In 2021-2023, the positive impact is projected to be stronger as firms bring forward their investments to benefit from the tax rebates of the investment window. From 2024 onwards, the GDP growth effect is expected to be slightly negative, due to the discontinuation of the investment window and the increase in taxes on energy consumption that are part of the second stage of the green tax reform. Over the medium and longer term, the plan is expected to enhance productivity. By the end of 2026, real GDP is forecast to be 0.12% higher than it would have been without the plan in place. The plan is also set to lift employment, notably in 2021-2022, driven by the investment window. While the effect of the green tax reform on employment turns negative from 2024 onwards (due to tax increases), this is outweighed by the positive employment effects of the other green components, notably targeting energy efficiency, green heating, carbon capture and storage (CCS) and sustainable road transport.

The reforms and investments underpinning the plan address the 2019 and 2020 country-specific recommendations (CSRs) in a satisfactory manner. The plan focuses on investment in the green and digital transitions, in particular the clean and efficient production and use of energy, sustainable transport, and research and innovation. Research measures have the potential to broaden the innovation base and involve more companies in R&D&I activities. Some CSRs, namely on investment-related economic policy on education and skills, and measures to address the shortage of health workers and ensure the effective supervision and enforcement of the anti-money laundering (AML) framework, have been addressed in a broadly satisfactory manner outside the plan. Hence measures relating to these areas were not incorporated in the recovery and resilience plan.

[1] Regulation (EU) 2021/241 of the European Parliament and of the Council of 12 February 2021 establishing the Recovery and Resilience Facility.

The measures in Denmark's plan comply with the 'do no significant harm' (DNSH) principle. Denmark has conducted a broadly adequate DNSH analysis. The DNSH requirements are upheld in the design of the measures, including their milestones or targets. Certain types of investment that would not comply with DNSH have been excluded ex ante from any RRF support (such as fossil-fuelled machineries under the investment scheme). Selection procedures for projects financed under the RRF will be conducted on condition that the applicant complies with the DNSH principle.

The measures in the plan should accelerate the green transition, enhance biodiversity and protect the environment. They support Denmark's decarbonisation and energy objectives, as set out in the 2030 national energy and climate plan and are thus a step towards achieving carbon neutrality by 2050**.** The plan therefore provides for a sustainable recovery of the Danish economy. It includes a broad set of measures improving the energy efficiency of buildings and industry, promoting sustainable mobility, supporting organic farming, and facilitating green research and innovation. In sum, measures supporting environmental, biodiversity and climate change objectives account for 59% of the plan's total allocation.

The digital transformation is promoted by incentivising digital investments and a new strategy to address future digitalisation challenges. Targeted measures will focus on the digitalisation of SMEs, extending rural broadband coverage and digitalisation in the healthcare sector. An ambitious reform agenda under a new 'digital strategy' is envisaged, with the objective of further digitalising the public administration to address the emerging new digital challenges in this area.

The implementation of the planned reforms and investments is expected to bring about deep structural changes in the economy. Raising energy taxes (and subsequently the introduction of a uniform GHG emission tax) should accelerate the green transformation of the economy and make Denmark one of the frontrunners in reducing GHG emissions. The other RRP measures and investments support these objectives coherently and efficiently, notably by focusing funding on sectors with the most GHG emissions (transport and agriculture) and improving energy efficiency at the same time. Key RRP measures are based on wide political agreements that extend beyond 2026 (when the RRF funding expires). The plan's ambitious R&D&I projects are expected to have a long-lasting positive impact on climate objectives (for instance by facilitating CCS). Stronger management systems for critical supplies in the health sector should contribute to its long-term resilience.

Denmark's control and audit system is up to the task of preventing, detecting and correcting potential fraud, corruption and conflicts of interest, and avoiding double funding. The ministries' control and audit systems include control of subordinate institutions' application of public funds, covering the planning of financial processes and procedures, IT security and the quality of the institutions' internal control and audit systems. The implementation of the plan rests on the successive fulfilment of high-quality targets and milestones that are clearly defined, specified and operational.

Denmark has provided individual cost estimates for the investment measures in the plan. The estimates and supporting documents show that the costs are justified, reasonable, plausible and commensurate, in line with the principle of cost-efficiency. However, less comprehensive information was provided on costs associated with the reforms in the plan (including the digital strategy) and novel projects (or mission-based R&D&I projects). The individual components do not include full information on whether RRF funding for respective reforms and investments would be additional to the support provided under other EU funds and instruments, since the 2021-2027 Partnership Agreement is still under negotiation. However, this is compensated by strong governance and control systems, which provide assurance that the total cost is not covered by existing or planned Union financing.

(1) Balanced Response	(2) CSRs	(3) Growth, jobs…	(4) DNSH	(5) Green target	(6) Digital target	(7) Lasting impact	(8) M & T	(9) Costing	(10) Control Systems	(11) Coherence
A	A	A	A	A	A	A	A	B	A	A

2. Recovery and resilience challenges: scene-setter

2.1 Macroeconomic outlook and developments since the 2020 country report

The Danish economy has proved more resilient than the EU average during the COVID-19 pandemic. This is mainly due to the relatively lower impact of the pandemic at the early stage (which led to avoiding a lockdown in many sectors), a favourable industrial specialisation (with large shares of pharmaceuticals and food industry) that proved rather resilient to the downturn, and the large and timely fiscal stimulus from the government. While private consumption and exports took a dive in 2020 due to the confinement measures in Denmark and its export markets, investment still increased by 2.1%. The construction sector was a major driver, growing by 7.6% in 2020 supported by the public sector demand for construction and rising house prices. A gradual reopening and a recovery in external demand are expected to pave the way for an acceleration of economic activity. As a result, after a drop in real GDP of 2.7% in 2020, output is forecast to expand by 2.9% in 2021 and by 3.5% in 2022.

The Danish government has put in place timely and appropriate measures to mitigate the negative economic and social impact of the crisis. Emergency measures included direct support to cover businesses' fixed costs and wage expenditures, tax payment deferrals, capital release for banks and liquidity provision for firms. The amount of direct grants reached 3% of GDP, while the liquidity and guarantee measures amounted to more than 22.3% of GDP. The government also paid out direct cash transfers to households (related to frozen holiday savings) to support consumption at the magnitude of 5 weeks of household income or 3.3% of GDP in late 2020 and in early 2021. The pre-existing tax-benefit system and the emergency policy measures to address the exceptional socio-economic situation are estimated to have cushioned about 93% of the shock on households' income, with the monetary compensation schemes absorbing the largest share of the market income shock (70%).[2] Investment surprised on the upside throughout the coronavirus crisis and will be further supported by the government's national economic 'recovery package' reaching approximately 1.7% of GDP.

Unemployment rose moderately in 2020. When the pandemic hit in spring 2020, Denmark quickly established a wage support scheme to avoid massive lay-offs in the economy and prevent a surge in unemployment. The resumption of economic activity following the end of the lockdown period quickly spread to the labour market: from the 70000 jobs lost in the first half of 2020, more than 50000 had already been recovered by end of the year, paving the way for a

[2] See Christl, M, De Poli, S., Figari, F., Hufkens, T., Leventi, C., Papini, A. and Tumino, A. (2021) "The cushioning effect of fiscal policy in the EU during the COVID-19 pandemic", JRC Working Papers on Taxation and Structural Reforms, 02/2021 (forthcoming); and Almeida, V., Barrios, S., Christl, M., De Poli, S., Tumino, A., Van der Wielen, W. (2020): 'Households´ income and the cushioning effect of fiscal policy measures during the Great Lockdown', JRC Working Paper on Taxation and Structural Reforms, 06/2020, available at
https://ec.europa.eu/jrc/sites/jrcsh/files/jrc121598.pdf.

further recovery. As a result, the unemployment rate only increased from 5% in 2019 to 5.8% in 2020. With job creation projected to rise in line with the reviving economic activity, the unemployment rate is set to decline steadily to 5.2% by 2022.

The economic downturn in 2020 had limited impact on Denmark's social situation. Denmark remains a society with limited economic inequality, as income inequality is markedly below the EU average. The 'at risk of poverty' or 'social exclusion' (AROPE) rate stood at 15.9% in 2020.Vulnerable groups are more likely to be at risk of poverty or social exclusion, including non-EU born, children, low skilled workers, and people with disabilities. The social situation for people above the age of 65 is generally relatively favourable. Income inequality has remained fairly stable in recent years, while the median household income has increased slightly.

Government finances have been negatively impacted by the COVID-19 crisis. Nevertheless**,** the budget deficit of 1.1% of GDP in 2020 was the smallest in the EU. Government revenues were boosted by high pension yield taxes reaching 2.5% of GDP, while the rise of expenditures remained limited to around 1.5% of GDP as the take-up of COVID-related emergency measures was lower than expected. In addition, one-off taxes related to the payment of frozen holidays raised government tax revenues to the tune of 0.8% of GDP. Following a steep rise in the debt-to-GDP ratio in 2020, to 42.2% of GDP, government debt is expected to reduce gradually towards 38.8% of GDP by 2022. The Commission's Debt Sustainability Monitor of February 2021 projects that debt will reach 26.6% of GDP in 2031. Hence, Danish debt continues to be on a sustainable path.

Some macroeconomic developments could signal risks of imbalances. The current account balance continues to show large, albeit narrowing, surpluses. It reached 8.9% of GDP in 2019 and is expected to decline slightly to 8.4% of GDP by 2022. House prices accelerated significantly, particularly in the main urban areas where prices were already high. Over the medium term, rising interest rates could put a strain on the finances of households that are exposed to high mortgage loans with variable interest rates. High house prices coincide with large household gross debt levels in Denmark, thus entailing potential macroeconomic risks. However, some household balance sheet deleveraging is expected to continue in 2021-2022, with both GDP and disposable income set to recover.

The macroeconomic scenario contained in the plan projects a rebound of economic growth in 2021 following the COVID-induced contraction in 2020. Real GDP growth is expected to reach 2.9% in 2021 and to strengthen further to 3.8% in 2022, before falling back to a more moderate 2.3% in 2023 and 1.3% in 2024 and 2025, respectively. According to this scenario, real GDP growth would be driven by private consumption and investment, with a slightly negative contribution from net external trade. According to the plan, inflation is set to increase moderately as economic activity accelerates, from 0.5% in 2020 to 1.6% in 2022.

Table 2.1: Comparison of macroeconomic developments and forecasts

	2019	2020		2021		2022		2023	2024	2025	2026
	COM	COM	RRP	COM	RRP	COM	RRP	RRP	RRP	RRP	RRP
Real GDP (% change)	2.8	-2.7	-2.7	2.9	2.1	3.5	3.8	2.3	1.3	1.3	na
Employment (% change)	1.2	-0.7	-0.7	0.6	0.2	0.9	1.2	0.5	0.1	0.3	na
Unemployment rate (%)	5	5.6	5.8	5.5	5.4	5.2	5.1	4.9	4.8	4.8	na
HICP inflation (% change)	0.7	0.3	0.3	1.3	1.1	1.3	1.5	2	1.9	2.1	na
General government balance (% of GDP)	3.8	-1.1	-1.1	-2.1	-3.3	-1.4	-0.9	-0.7	-0.6	0	na
Gross debt ratio (% of GDP)	33.3	42.2	42.2	40.2	40.7	38.8	41.3	41.6	41.3	39.7	na

Source: Commission Spring forecast 2021, (COM), Recovery and resilience plan (RRP)

The macroeconomic scenario of the recovery and resilience plan is cautious compared to the Commission 2021 spring forecast. The plan forecasts a weaker recovery in 2021 than the Commission forecast, while the figures are more aligned for 2022. For 2021, the plan forecast assumes a weaker release of pent-up demand pushing private consumption and a weaker improvement in the external environment, resulting in less robust investment growth. As a further consequence, the plan projects less favourable labour market developments and slightly lower inflation in 2021, compared with the Commission forecast. For the general government deficit and debt, the Danish authorities forecast a budget deficit of 3.3% of GDP for 2021 (above the 3% threshold and above the Commission forecast of 2.1% of GDP). Due to the less favourable outlook for private consumption and employment, as well as less optimistic assumptions as regards pension yield tax revenues, Denmark forecasts lower tax revenues in 2021 than the Commission. The macroeconomic and fiscal outlook continues to be affected by high uncertainty related to the COVID-19 pandemic and its economic consequences.

2.2 Challenges related to sustainable growth, cohesion, resilience and policies for the next generation

Smart, sustainable and inclusive growth

The Danish economy is advanced in terms of smart, sustainable and inclusive growth. However, despite its overall good performance, the Danish economy faces a set of challenges across several policy areas.

The current account surplus remains high, but this is mainly due to high savings rather than low investment. Declining corporate savings are compensated by increasing household and government savings. Corporate investment, driven by large companies, is well above the euro area average, but investment by smaller companies remains relatively subdued. In addition, consecutive surpluses have led to an important positive net international investment position, generating positive net primary income, which have in turn fuelled current account surpluses.

Productivity growth has been sluggish for a prolonged period. High productivity growth is fundamental to support economic growth, maintain the relatively high level of welfare in Denmark and ensure the country's competitiveness. While Denmark's productivity level is high compared to other EU Member States, productivity growth has been on the weak side. Labour productivity growth has picked up since 2015 due to the strong performance of the manufacturing sector, while remaining moderate in the domestically oriented services sector[3].

While many companies are created in Denmark, start-ups and small and innovative companies struggle to scale up and grow. A smaller share of businesses in Denmark survives over the 1-, 3- and 5-year mark than in most Member States. In addition, young, high-growth innovative companies often leave Denmark as they scale up. Equity financing is relatively low and venture capital expenditure is among the lowest in the EU at 0.1% of GDP in 2019.

R&D activity remains concentrated in a small number of large firms in a few sectors, notably pharmaceuticals and biotechnology[4]. Increasing productivity gaps between large and small firms suggest weaknesses in the diffusion of technological advance, meaning that high R&D spending is not sufficiently translated into productivity gains. Incentivising investment in intangible assets could boost the innovation capacity of small and young firms. Investments broadening the innovation base and knowledge spill-overs from large companies to SMEs and support to innovative start-ups remain insufficient.

Social and territorial cohesion

The Danish labour market faces sector-specific labour supply and demand mismatches. While less evident during the pandemic, these appear to be structural. In particular, the supply of graduates from vocational education and training (VET) remains low as VET programmes fail to attract sufficient numbers of young people. The share of young people starting a VET programme directly after compulsory school has stagnated at around 20%, significantly below the government´s 2025 target of 30%. Regional differences are also significant, with young people in larger cities participating less in VET programmes than those in other parts of the country.

Lower skill levels of people on the margins of the labour market hamper better labour market outcomes. Re- and upskilling are important to ensure the cohesion and resilience of the labour market, including for people with migrant backgrounds. The COVID-19 crisis has forced some firms to abolish several apprenticeship places, which may make it harder for these students

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[3] See for instance Denmark Country Report 2020 SWD(2020) 903 final or De Økonomiske Råd (2021). Produktivitet 2021. Rapport fra produktivitetsråddet.https://dors.dk/vismandsrapporter/produktivitet-2021.

[4] Grassano, N., Hernandez Guevara, H., Tuebke, A., Amoroso, S., Dosso, M., Georgakaki, A. and Pasimeni, F. (2020) The 2020 EU Industrial R&D Investment Scoreboard, EUR 30519 EN, Publications Office of the European Union, Luxembourg, ISBN 978-92-76-27418-6, doi:10.2760/203793, JRC123317.

to complete their VET studies. Improving employment rates among young people and vulnerable groups remains a challenge. The total number of marginalised persons has decreased. Still, lower than average employment rates can be observed for young people, migrants and people with disabilities. Some groups prove difficult to integrate in the labour market with standard policy tools.

Health, and economic, social and institutional resilience

Denmark's effective handling of the COVID-19 pandemic is testimony to its well-functioning health system. The health system is characterised by well-developed e-health services and broad use of data for care provision and policymaking. This has proved useful during the pandemic. Nevertheless, the system faces challenges that predate the coronavirus outbreak, for instance a shortage of health workers, in particular nurses. Patient overload prevents some general practitioners from admitting new patients. Hospitals, general practitioners and municipalities use different digital solutions, which are not always fully interoperable.

Despite substantial deleveraging in recent years, gross debt of Denmark's household sector is higher than the economic fundamentals would imply. Danish households have one of the highest levels of spending on mortgage debt services in the EU. The household sector's debt is offset by substantially higher, albeit largely illiquid, financial assets, notably real estate and pension savings. The last decade has seen some deleveraging on the side of households, in part spurred by low interest rates. In addition, several policy measures have been put in place to address this underlying risk in recent years, but it takes time for their positive effects to be visible in the overall mortgage stock and for related financial risks to be effectively reduced. Notwithstanding the positive trends, the proportion of variable-interest-rate and interest-only loans in the overall mortgage stock remains high. House price rises accelerated during the pandemic due to increased housing demand and lower supply. Risks of house price overvaluation, particularly in urban areas, have increased. High house prices combined with large household gross debt in Denmark constitute a macroeconomic risk.

Denmark is taking action to address risks of money laundering. Following a major incident involving a Danish bank's foreign subsidiary in 2018, Denmark has taken several measures to strengthen its anti-money laundering (AML) framework. Legislative steps included the transposition of the 4th and the 5th AML Directives. The Financial Supervisory Authority and the Financial Intelligence Unit have been reinforced by increasing budget and adding staff. However, the effectiveness of the enhanced AML framework in terms of supervision and enforcement still needs to be demonstrated. Procedures applying the risk-based approach, adequate training and qualification of new staff and better cooperation between relevant Danish and international AML authorities are currently being implemented.

Policies for the next generation, children and young people, including education and skills

Young people in Denmark benefit from a well-performing education system, but the educational outcomes of pupils with a migrant background remain a challenge. Educational outcomes are generally above the EU average. However, outcomes of pupils with a migrant background remain a challenge despite relatively high participation in early childhood education and care (compared to other EU countries) and early school leaving rates being no higher than those among Danish-born pupils. For all Danish pupils, the early school leaving rate fell to 7.5% in 2015, but increased again to 9.3 % in 2020, just below the 10% national target.

The education system managed to adapt rather well to the consequences of the COVID-19 crisis. Well-developed ICT infrastructure and digital competences of teachers and pupils allowed a quick adaptation to distance learning. Digital competences among students are on average higher than in other countries. However, according to the digital economy and society index (DESI) 5 out of 10 students score at 'basic use' level or lower. This indicates that there is still a need for them to upgrade their skills. Moreover, social educators and teachers need to improve their generally good digital skills to use specific digital resources.

2.3 Challenges related to the green and digital transitions

Green dimension

The recovery and resilience plan should contribute to the green transition and at least 37% of the financial allocation should contribute to climate objectives. The measures in the plan should contribute to achieving the 2050 climate neutrality objective, and the 2030 energy and climate targets, taking into account Denmark's national energy and climate plan (NECP). The plan should also contribute to meeting environmental targets for waste, water, pollution control, sustainable mobility, biodiversity protection and restoration, and marine and water resources, and support the transition to sustainable food systems and a circular economy as appropriate, while ensuring that nobody is left behind.

Denmark aims to combine sustained economic growth with lowering GHG emissions. Between 1990 and 2019, Denmark's GHG emissions fell by 34%[1], while per capita GDP increased by 63%. This has been supported by ambitious climate policies[5].

Greenhouse gas (GHG) emissions

Denmark has set an ambitious GHG emissions reduction target of 70% by 2030 relative to the 1990 level, and climate neutrality by 2050 at the latest. Achieving this target will require significant investments and reforms across the economy, especially in installation of new renewable-energy capacity, in households (energy efficiency and conversion of heat supply), industry, biogas, and district heating. Successful GHG reduction would give the country an opportunity to improve economic growth, job creation and health benefits[6], while building on its

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[5] Climate Action Progress Report 2020, published by DG CLIMA in November 2020. https://ec.europa.eu/clima/sites/clima/files/strategies/progress/docs/com_2020_777_en.pdf

[6] Shnapp, S., Paci, D. and Bertoldi, P., *Untapping multiple benefits: hidden values in environmental and building policies*, EUR 30280 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-19983-0, doi:10.2760/314081, JRC120683.

existing position in the development and marketing of carbon-neutral technologies, which could further strengthen its competitiveness. Following the assessment of its NECP[7], Denmark is likely to meet its EU commitments (see Table 2.3) but will need to take additional policy action to achieve its own national objectives, especially in non-ETS sectors, as they account for the largest share (69%) of GHG emissions[4].

Denmark has a national binding reduction target of 39% for GHG emissions not covered by the EU emissions trading system, in line with the Effort Sharing Regulation. Presently, buildings, transport and agriculture are the largest GHG-emitting sectors, and the latter two with the lowest marginal abatement costs (i.e. cost of reducing one more unit of pollution). As of 2019, Denmark had reduced its effort-sharing sector emissions by 19% compared to 2005. The NECP contained limited information on how Denmark plans to meet its 2030 non-ETS target. Specifically, the plan presents only a scenario, in which the 2030 non-ETS target would be missed by 13 percentage points (i.e. 28.3 million tonnes of CO2 equivalent). For the non-ETS emission reduction target, Denmark confirmed that it will make use of available 2% ETS flexibility (i.e. 8 million t CO2e eq) and generate over 14.6 million land-use, land-use change and forestry (LULUCF) credits to comply with the Effort Sharing Regulation.

As regards investments, the NECP estimates that the cumulated public and private investment needs would amount to DKK 100-180 billion in 2020-2030. This is equivalent to approximately DKK 10 billion investment annually (around 0.4% of GDP). Of the total investment figure, the NECP indicates that public sources of annual funding (i.e. future state budget laws) will increase gradually to DKK 2.8 billion in 2025 (EUR 375 million, roughly 0.1% of GDP).

Energy efficiency

Energy consumption increased in the years up until 2020, which highlights the need for additional policy and measures. Denmark forecasts an increase in final energy consumption by 2030 compared with 2018, having achieved annual reductions from 2005 to 2018. Reducing total consumption thus requires additional steps, notably increasing energy efficiency in industry, services, buildings and (road and air) transport.

Increasing investment in the energy efficiency of buildings would significantly reduce GHG emissions. In the NECP, Denmark indicates a contribution for 2030 of 18.3 million tonnes of oil equivalent (Mtoe) for primary energy consumption and 15.8 Mtoe for final energy consumption, which the Commission assessed as a very low ambition given that latest data indicate a consumption of 16.8 Mtoe for primary energy consumption and 14.3 Mtoe for final energy

[7] Economidou, M., Ringel, M., Valentova, M., Zancanella, P., Tsemekidi Tzeiranak, S., Zangheri, P., Paci, D., Ribeiro Serrenho, T., Palermo, V. and Bertoldi, P., *National Energy and Climate Plans for 2021-2030 under the EU Energy Union*, EUR 30487 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-27013-3, doi:10.2760/678371, JRC122862.

consumption in 2019. Denmark has already reduced the energy consumption of the building stock in the last 30 years, but a significant share of the building stock complies only with minimum energy efficiency standards. In its long-term renovation strategy, Denmark indicates that the final energy consumption for heating in housing per square metre of area heated has been reduced by almost 45% compared to 1975, and net heat consumption per square metre has been reduced by almost 30% over the same[8] period. Denmark aims to reduce the energy consumption of the existing building stock by 50% on average, in order to reach the target of a fossil-free society in 2050, triggered by a fossil-free energy supply in 2050. To achieve this, more than 30% of the building stock needs to be renovated by 2050 – and 80-85% of this potential is in buildings built before 1980. Therefore, special focus should be put on the worst-performing sector of the building stock and the renovation depth, in line with the Renovation Wave initiative and the national long-term renovation strategy[9].

Ensuring a socially fair transition to a low-carbon society is a challenge. Anticipating and mitigating negative social impacts will be crucial, for instance by ensuring that affected groups can benefit from re- and up-skilling and by monitoring distributional effects.

Share of renewables in energy mix

Denmark's climate objectives will require additional investments in renewable energy generation, notably offshore wind. Denmark is highly energy-independent, notably due to a high share of renewable energy, at 35.4% in 2018, which is well above the EU average (18.9%) and aims to generate more than 100% of its electricity consumption by renewables by 2030. This will require significant investments in renewable energy generation, notably offshore wind. In its NECP, Denmark estimates that the public and private investment flows from 2018 to 2030 will reach DKK 60-90 billion (around 3-4% of GDP) for new renewable energy capacity installed.

Further investments in the grid network are necessary to ensure that the increasing share of renewable energy can be used efficiently. Investments in the grid, as well as energy system integration, such as linking the various energy carriers with each other and with the end-use sectors, such as buildings, transport or industry, will be necessary to increase the penetration of renewables in the energy system and the electrification of the energy mix. Exploiting Denmark's full renewable energy potential will require additional specific measures, including on system flexibility, smart grids and storage.

Biodiversity and zero pollution

[8] Castellazzi, L., Zangheri, P., Paci, D., Economidou, M., Labanca, N., Ribeiro Serrenho, T., Zancanella, P. and Broc, J., *Assessment of second long-term renovation strategies under the Energy Efficiency Directive*, EUR 29605 EN, Publications Office of the European Union, Luxembourg, 2019, ISBN 978-92-79-98727-4, doi:10.2760/973672, JRC114200.

[9] Zangheri, P., Armani, R., Kakoulaki, G., Bavetta, M., Martirano, G., Pignatelli, F. and Baranzelli, C., *Building energy renovation for decarbonisation and Covid-19 recovery*, EUR 30433 EN, Publications Office of the European Union, Luxembourg, 2020, ISBN 978-92-76-24766-1, doi:10.2760/08629, JRC122143.

While environmental policy implementation in Denmark is generally of a high standard, some EU environmental objectives are not yet fully met. As an intensely farmed country with relatively high population density, Denmark is facing pressures from agriculture, transport, building and production infrastructure. The main environmental challenges are to improve the status of natural habitats and biodiversity protection, air and water quality and the waste management system. Investments from national and EU programmes need to focus particularly on diminishing the pressures on natural habitats and species from intensive agriculture, including a decrease in the use of pesticides and nutrients, increasing restoration efforts and cutting pollution in Danish waters and in the Baltic Sea. Further reducing waste and ensuring compliance with the recycling targets for the post-2020 period remain a challenge.

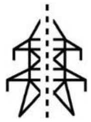
Sustainable transport

Sustainable transport is a cornerstone of the green transition. Fighting road transport bottlenecks, electrification of the railways, building the Fehmarn tunnel and other infrastructure encouraging electricity-based transport, are priority areas in which investments and reforms may be needed, for instance in the form of tax incentives to encourage consumers to choose electric vehicles. Sustainable fuels for road, maritime and air transport are essential for the green transition. Denmark is currently exploring the feasibility of establishing a large-scale plant to convert electricity from sustainable sources such as wind power to renewable fuel (notably hydrogen), in turn allowing ships to use green energy, for example. Additional projects on CCS and 'power to –X' are pivotal in achieving the 100% renewable energy share and reducing GHG emissions.

The table below gives an overview of Denmark's objectives, targets and contributions under Regulation (EU) 2018/1999 of the European Parliament and of the Council on the Governance of the Energy Union and Climate Action.

Table 2.3. Overview of Denmark's objectives, targets and contributions under Regulation (EU) 2018/1999

	National targets and contributions	**Latest available data**	**2020**	**2030**	**Assessment of 2030 ambition level**
GHG	Binding target for GHG emissions compared to 2005 under the Effort Sharing Regulation (ESR)	-19%	-20%	-39%	As in ESR
	National target/contribution for renewable energy: share of energy from renewable sources in gross final consumption of energy	37.2%	30%	55%	Sufficiently ambitious (46% is the result of RES formula)
	National contribution for energy efficiency:				
	Primary energy consumption	16.8 Mtoe	17.5 Mtoe	18.3 Mtoe	Very low ambition
	Final energy consumption	14.3 Mtoe	15.2 Mtoe	15.8 Mtoe	Very low ambition

	Level of electricity interconnectivity	51%	N.A.	N.A	N.A.

Source: Assessment of Denmark's final NECP (SWD (2020) 926 final)

Digital dimension

The recovery and resilience plan should contribute to the digital transition and at least 20% of the financial allocation needs to contribute to digital objectives. The measures in the plan should contribute to the digital transformation of all sectors, (including public administration, public services, and the justice and health systems. The aim should be to improve not only the competitiveness, but also the resilience, agility and security of companies and public actors, while ensuring inclusiveness.

Denmark ranked third in the Commission's 2020 Digital Economy and Society Index. The 'strategy for Denmark's digital growth', adopted in 2018, sets an ambitious objective for Denmark to be a digital frontrunner by integrating the use of new technologies, enhancing digital skills and thereby improving growth and prosperity.

Denmark remained a leader in connectivity in 2020, improving its performance at a faster pace than the EU average. 5G and fixed very high-capacity network coverage, mobile broadband take-up and 5G readiness are among the best in the EU. The take-up of fixed broadband focuses on high bandwidths and is complemented by extensive mobile broadband services. As fibre roll-out continues, a high share of households is covered with FTTP (fibre-to-the-premises) in Denmark (70% against the EU average of 42.5%).

As regards the human capital dimension, Denmark performs above the EU average on digital skills. 70% of the population have at least basic digital skills, which is well above the EU average of 56%, and 49% have above-basic digital skills (EU average 31%). Danish firms are among the European leaders in the uptake of several of the most common digital services and technologies and investing in training their employees for acquiring and improving their information and communication technology (ICT) skills.

The low share of ICT specialists in the workforce remains a challenge. In 2020 ICT specialists accounted for 5.5% of total employment and only 22% of those jobs were occupied by females. ICT graduates accounted for 4.8% of all graduates in Denmark[10]. In 2020, 58.1% of

[10] Gómez Losada et al. (2020) estimate an unmet demand for tertiary study places of advanced digital skills in Denmark across technological domain, scope of specialization, and level of studies. Gómez Losada, Á., López-

enterprises were looking for ICT specialists reported hard-to-fill vacancies, which is above the EU average (55.4%). Denmark has allocated EUR 16.1 million to create more study places; of this, a significant proportion will be allocated to programmes in science, technology, engineering and mathematics (STEM) subjects, including IT[11]. This comes on top of the extra EUR 13.7 million allocated to create more STEM study places in December 2019[12]. As a result, the intake in STEM education programmes increased by 9% (1 380 study places) in summer 2020[13].

A key challenge is the inclusion of women in digital jobs, careers and entrepreneurship to increase the total share of ICT specialists in the workforce. In 2019, the Ministry of Higher Education and Science launched a 'national action plan for digital skills' based on ideas and experiences from higher education institutions. This prepared institutions for the COVID-19 pandemic. Lockdowns forced many education institutions to move to distance learning activities and the use of digital tools increased by a factor of up to 200 within a short time span. In 2020, the Ministry allocated EUR 6 million to nine projects to strengthen digital competencies among teachers in higher education[14].

SMEs face a growing shortage of talent with advanced digital skills in areas such as artificial intelligence, high-performance computing, cybersecurity and machine learning. The 2020 digital programme for SME development provides public subsidies for strengthening small businesses' trading capabilities, digital transformation and e-commerce activities, in turn strengthening digital skills in SMEs. Over 900 enterprises benefited from the programme in 2020. The programme has received additional government funds to advance the digital transition and improve e-commerce capabilities.

Danish firms continue to have one of the highest digital intensities in the EU. When measured against the 12 key digital technologies covered by the Digital Intensity Index, more than 45% of companies in Denmark are highly or very highly digitalised, significantly higher than the EU average of 15.4%. Furthermore, 57% of enterprises use cloud (EU average: 26%), 27% big data (EU: 14%) and 22% artificial intelligence (EU: 25%). Online sales are also increasing, pushed by the lockdown, with 20% of turnover generated by online sales. With 38%,

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Cobo, M., Samoili, S., Alaveras, G., Vázquez-Prada Baillet, M., Cardona,M., Righi, R., Ziemba, L., and De Prato, G. (2020) Estimation of supply and demand of tertiary education places in advanced digital profiles in the EU. Focus on Artificial Intelligence, High Performance Computing, Cybersecurity and Data Science, EUR30377EN, Publications Office of the European Union, Luxembourg, JRC121683.

[11] https://ufm.dk/aktuelt/pressemeddelelser/2020/rekordmange-er-optaget-pa-en-videregaende-uddannelse

[12] https://ufm.dk/aktuelt/pressemeddelelser/2019/udsigt-til-oget-optag-pa-stem-uddannelser

[13] https://ufm.dk/aktuelt/pressemeddelelser/2020/rekordmange-er-optaget-pa-en-videregaende-uddannelse

[14] https://ufm.dk/aktuelt/pressemeddelelser/2020/fremtidens-undervisere-skal-mestre-de-digitale-muligheder

the share of SMEs selling online is significantly above the EU average of 17%, and 10% sell to other EU countries.

While the digitalisation of Danish firms is progressing steadily overall, this is less the case for SMEs. 85.3% of large firms had high levels of digital intensity in 2020, but this applied to only 43.8% of SMEs. Only 2.7% of large firms had very low digital intensity, while this ratio was 11.6% for SMEs. 62.2% of large firms sold online, but only 37.7% of SMEs.

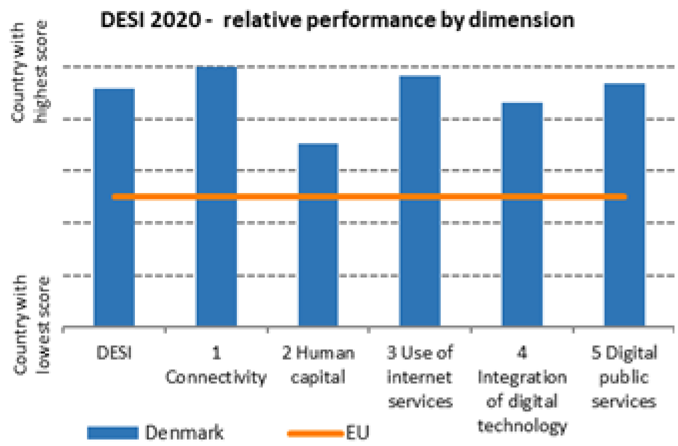
In digital public services, Denmark ranks well above the EU average. The share of citizens interacting with public authorities online and submitting online forms (92%) is well above the EU average (64%). Denmark is also a leader in the EU on digital public services provided for businesses. The 2016-2020 digital strategy promoted the digitalisation of Danish public administrations at all levels of government, i.e. local, regional and central.

Cybersecurity constitutes a key challenge for the continued digital transformation. It is therefore imperative to achieve an adequate level of security to manage and reduce financial, operational, reputational and legal risks. The 2018-2021 cyber and information security strategy helps operators in the Danish healthcare sector to step up joint and coordinated actions to predict, prevent, detect and respond to cyber and information security incidents.

Denmark has a good R&D ecosystem, and the government has taken steps to foster digitally-related investment in R&D. In 2020, the government decided to allocate an additional DKK 3.2 billion to green digital research and innovation projects in areas including artificial intelligence, robot technology and digitalisation in the agricultural sector. As regards the development and deployment of advanced technologies, Denmark has signed the Declaration on Cooperation on Artificial Intelligence (AI). In March 2019, the Danish government launched its national strategy for AI. The aims of the strategy are for Denmark to be a front-runner in the responsible development and use of AI, and to benefit individuals, businesses and society at large. For this, Denmark needs to invest even more to build further technological capacity (e.g. supercomputers, quantum computing, AI, cybersecurity, internet of things and new communication services such as edge computing).

As regards the greening of the digital sector, Denmark is moving forward in green public procurement. The green digital public procurement plan adopted in 2020 could make a positive contribution to a greener economy, notably through assessing offers on a lifetime cost basis. Denmark has a challenge with high amounts of e-waste, which is addressed inter alia through municipal sorting requirements.

Graph 2.3. Denmark's ranking in the Digital Economy and Society Index 2020[15]



https://ec.europa.eu/digital-single-market/en/scoreboard/denmark

Box 2.3: Progress towards the UN sustainable development goals

Sustainable Development Goals and the four dimensions underpinning the Annual Sustainable Growth Strategy.

[15] EU aggregate corresponds to EU28, based on 2020 DESI report.

In this figure, the United Nations' Sustainable Development Goals are represented under a specific Commission guiding principle for competitive sustainability from the 2021 Annual Sustainable Growth Strategy, to which they are strongly associated. It should be noted that most Sustainable Development Goals contribute, to varying degrees, to several guiding principles.

1. No poverty
2. Zero hunger
3. Good health and well-being
4. Quality educaion
5. Gender equality
6. Clean water and sanitation
7. Affordable and clean energy
8. Decent work and economic growth
9. Industry, innovation and infrastructure
10. Reduced inequalities
11. Sustainable cities and communities
12. Responsible consumption and production
13. Climate action
14. Life below water
15. Life on land
16. Peace, justice and strong institutions
17. Partnership for the goals

The objectives of the sustainable development goals have been integrated in the European Semester since the 2020 cycle. This provides a strong commitment to sustainability in the coordination of economic and employment policies in the EU. In that respect, this Box outlines Denmark's performance with respect to SDGs with particular relevance for the four dimensions underpinning the 2021 annual sustainable growth strategy and of relevance to the recovery and resilience plans (green transition, fairness, digital transition and productivity, and macroeconomic stability), indicating possible areas where investments and reforms in line with the objectives of the RRF could further accelerate progress on the SDGs.

Green transition

Denmark performs well on many SDGs related to the green transition. It is an international leader in climate action (SDG13) and has made good progress on this SDG. It performs well on affordable and clean energy (SDG7). It has a high share of renewable energy in its energy mix, making it highly energy independent. Its share of renewable energy was 35.4 % in 2018, well above the EU average (18.9%). However, little progress was made in reducing emissions from fuels and cars. CO2 emissions from new passenger cars increased slightly in 2018, to 109.5g CO2/km, continuing an upward trend from 2016. On waste generation and recycling, Denmark is slightly below the EU average. However, the country scores lower than the EU average on the use of circular material (SDG11, sustainable cities and communities and SDG12, responsible consumption and production).

Fairness

Denmark has generally high rankings on indicators assessing the fairness of society and the economy. For instance, it performs well on all the indicators pertaining to SDG1 (no poverty), SDG5 (gender equality) and SDG10 (reducing inequalities). Its results on quality education (SDG4) are high (with the exception of young with migrant background) and recovering from a slightly downward trend.

Digital transition and productivity

Denmark performs well on indicators related to industry, innovation and infrastructure (SDG9), It ranked first among EU Member States on R&D personnel as a share of the active population in 2020 (2.1%, EU average 1.4%).

Macroeconomic stability

Denmark performs well on indicators measuring ‘peace, justice and strong institutions’ (SDG16), where it scores high in a global context on the perceived absence of corruption. According to the 2021 EU Justice Scoreboard, 74% of the general public perceive the level of independence of courts and judges to be ‘fairly or very good’. In a similar vein, Denmark performs well on SDG8 (decent work and economic growth), where it is among the best performers. The employment rate is above the EU average, reaching 77.8% in 2020 (EU average 72.4).

3. OBJECTIVES, STRUCTURE AND GOVERNANCE OF THE PLAN

3.1 Overall strategy of the plan

The Danish plan supports the massive investments in the green transition that are necessary to reach the target of lowering GHG emissions in Denmark by 70% by 2030, a target agreed by a broad majority in the Danish Parliament. Since the government came into office almost 2 years ago, decisions and political agreements have been made to reduce Denmark's GHG emissions by 9.1 megatons by 2030, of which the initiatives in the plan contribute 2.8 megatons.

The basic idea behind Denmark's recovery and resilience plan is thus to use economic stimulus to accelerate investments in the green transition. Funds in the plan, which are roughly matched by national funds, will help stimulate the economy and support jobs and companies in the short term while helping speed up the green transition in the medium to long term. This effort is crucial to realising Denmark's ambitious climate target and to underpinning the common EU climate targets. Getting all the way to a 70% reduction in GHG emissions by 2030 will require large investments, in particular in research, technology and infrastructure. The plan therefore channels approximately 60% of the funds to green initiatives.

The plan builds on the input from eight 'restart teams' form the business sector, with participation from the social partners. The teams investigated possible initiatives, with a special emphasis on strengthening Danish trading opportunities, and regularly reported to the government on their conclusions. The plan has also benefitted from recommendations from the 13 climate partnerships with business and industry. The partnerships were tasked with identifying and developing new green solutions, which would both reduce business and industry emissions and strengthen companies' green competitiveness.

The plan is made up of seven components. In addition to its contribution to reaching Denmark's climate targets, the plan promotes digitalisation, job creation and resilience of the health care system.

The plan does not explicitly include cross-border projects. However, it is noted that Denmark presents the carbon capture and storage project ('*CCS potential*') in component 3 as an important first step in view of the later creation of a European CO2 storage infrastructure.

Table 3.1. Overview of plan: components and associated costs

Component	Costs (EUR million)
Strengthening the resilience of the healthcare system	33
Green transition of agriculture and environment	178
Energy efficiency, green heating and carbon capture and storage	235
Green tax reform	580
Sustainable road transport	258
Digitalisation	89
Green research and development	242

3.2 Implementation aspects of the plan

Governance

The Ministry of Finance will oversee coordination, monitoring and reporting on the plan's implementation. It will ensure compliance with EU regulations; monitor the full and timely fulfilment of the plan's strategic and operational objectives through milestones and targets; prepare and submit requests for disbursement based on the necessary information from the competent authorities and reports to the Commission; ensure the evaluation of the results of the plan and the dissemination of outputs; and provide the competent authorities with technical assistance. In addition, within the Ministry of Finance, the existing internal audit unit will be assigned the task of coordinating the audit systems and conducting controls on the line ministries' application of funds and fulfilment of milestones and targets. While the Ministry will monitor the implementation of the plan and be responsible for exchanges with the EU institutions, responsibility for implementing the individual components lies with the relevant ministries (as per the table below). This ensures that the plan underpins and is coherent with national strategies in the various policy areas, including transport, health, climate and energy, environmental protection and digitalisation.

Table 3.2. Ministries' responsibility per component

Component	Responsible ministry
Strengthening the resilience of the healthcare system	Ministry of Health
Green transition of agriculture and the environment	Ministry of Food, Agriculture and Fishery and Ministry of Environment
Energy efficiency, green heating and CCS	Ministry of Climate, Energy and Utilities
Green tax reform	Ministry of Taxation
Sustainable road transport	Ministry of Transport
Digitalisation	Ministry of Finance/ Agency of Digitalisation and Ministry of Industry, Business and Financial Affairs
Green research and development	Ministry of Higher Education and Science

Funding from the RRF and additional national or Union funds will be disbursed at central level. The funding for the plan will be registered as revenue in the Budget Bill for 2021 via a supplementary appropriation to be adopted by the Danish Parliament's Finance Committee. This ensures the possibility to separate RRF funding from other funding. The absence of double funding will be one of the application criteria when assessing applications for all funds under the plan.

Equality

The plan describes national challenges in terms of gender equality and, to a lesser extent, challenges relating to equal opportunities for all. This description includes a wider reference to several legislative or policy initiatives which are due to complement the reforms and investments in the plan in their efforts to overcome the identified equality challenges. Mechanisms are in place to ensure that equal opportunities will be considered when developing or implementing some projects. This involves, for instance, ensuring that equality considerations are integrated in the recommendations for the design of the new digital strategy.

Consultation process

The plan contains information on the consultation processes that have taken place. Stakeholders were consulted at several stages. Most of the consultation processes took place prior to the drafting of the plan and in the context of the national 'restart teams' and climate partnerships. Their initiatives were fed into government initiatives that were then the subject of political agreement in the Danish Parliament. During the drafting of the recovery and the resilience plan, the Danish authorities consulted individual stakeholders and social partners directly and participated in an event with stakeholders and social partners that was organised with the help of the local Commission Representation. The Commission considers that the Danish authorities have fulfilled relevant obligations stemming from the RRF Regulation.

Communication strategy

Most initiatives in the plan were included in the negotiations on the 2021 budget or the earlier negotiations on economic recovery and green stimulus in 2020. The inclusion of projects under the plan in the national budget and in several broad political agreements (notably on the green tax reform and road transport) raised the profile of the RRF from the outset among the politically interested general public.

In the run-up to the submission of the plan, the Danish authorities (in cooperation with the Commission Representation in Denmark) organised a stakeholder event. During the event, the authorities presented the outline of the plan, highlighting the associated business opportunities in Denmark. In view of Denmark's position in green and digital goods and services, the event also focused on business opportunities abroad arising from the realisation of other Member States' plans.

The plan indicates a clear commitment by the authorities to meeting the RRF Regulation's requirements on communication. This refers in particular to the labelling of projects as financed by the RRF ('funded by the European Union – NextGenerationEU'). The implementation of the plan could give rise to additional communication opportunities; it will be up to the Danish authorities, in cooperation with the Commission, to seize such opportunities.

State aid

State aid and competition rules fully apply to the measures funded by the Recovery and Resilience Facility. Union funds channelled through the authorities of Member States, like the RRF funds, become State resources and can constitute State aid if all the other criteria of Article 107(1) TFEU are met. When this is the case and State aid is present, these measures must be notified and approved by the Commission before Member States can grant the aid, unless those measures are covered by an existing aid scheme or comply with the applicable conditions of a block exemption regulation, in particular the General Block Exemption Regulation (GBER) declaring certain categories of aid compatible with the internal market in application of Articles 107 and 108 TFEU[16].

When State aid is present and it requires notification, it is the duty of the Member State to notify State aid measures to the Commission before granting them, in compliance with Article 108(3) TFEU. In this respect, the State aid analysis carried out by Denmark in the recovery and resilience plan cannot be deemed a State aid notification. In as far as Denmark considers that a specific measure contained in the recovery and resilience plan entails *de minimis* aid or aid exempted from the notification requirement, it is the responsibility of Denmark to ensure full compliance with the applicable rules. Irrespective of whether they comply with the EU's State aid regime, measures taken under this framework should be compatible with the EU's international obligations, in particular under World Trade Organization rules.

Security self-assessment

The Danish plan does not include a security self-assessment. However, the components "Strengthening the resilience of the healthcare system", "Digitalisation" and "Green research and development" each include a section that explains the contribution of the measures to the Union's open strategic autonomy and security issues. Denmark also confirmed that any potential security issues regarding investments in the digital trans-formation will be duly taken into account by the implementing Danish authorities before initiating the investment. This includes choosing suppliers and in cases of outsourcing of critical and sensitive activities for the strategic autonomy or security of Denmark. Furthermore, the new digital strategy will include a new cyber security strategy, which contributes to mitigating potential security risks.

[16] Commission Regulation 651/2014, OJ L 187, 26.6.2014, p. 1

4. Summary of the assessment of the plan

4.1 Comprehensive and adequately balanced response to the economic and social situation

The plan constitutes a balanced response to Denmark's economic and social situation and, given the specific challenges and financial allocation, is an appropriate contribution to the six pillars referred to in Article 3 to the Regulation. The plan contains 39 measures (6 reforms and 33 investments) divided into seven components focusing on the following three main objectives: green transition, digitalisation and healthcare.

Table 4.1 - Contribution to the six pillars

	Green transition	Digital transformation	Smart, sustainable & inclusive growth	Social and territorial cohesion	Health, and economic, social and institutional resilience	Policies for the next generation
Strengthening the resilience of the healthcare system		○	○	●	●	
Green Transition of Agriculture and Environment	●	●	○	○		
Energy Efficiency, Green Heating and Carbon Capture and Storage	●		○	●		
Green Tax Reform	●	●				
Sustainable road transport	●			○		
Digitalisation		●	●	○	○	○
Investing in Green Research and Development	●	○	●			

Key: "●" investments and reforms of the component significantly contribute to the pillar; "○" the component partially contributes to the pillar

Pillar I: Green transition

The plan's main focus is on accelerating the green transition. The measures in the plan are aligned with the national energy and climate plan (NECP) for 2021-2030 and the government's overall objective of reducing GHG emissions by 70% by 2030 (compared to 1990) and becoming climate neutral by 2050 at the latest.

The most important initiative in the plan is the promotion of the green tax reform. The plan is expected to contribute significantly to the implementation of the reform by financing a tax-subsidised 'investment window' to create an incentive for companies to accelerate their green investments. The rise in energy taxes as of 2023 will aim at reducing CO2 emissions from fossil fuels, thus providing a strong incentive for companies to reduce GHG emissions. In addition, an expert group will prepare a recommendation to introduce a uniform tax on GHG emissions as a subsequent step, paving the way for further ambitious reductions.

The transport and agricultural sectors are the two largest contributors to Denmark's non-ETS sectors' emissions[17]. Therefore, besides the general green tax reform, the plan contains additional measures targeting these two sectors. The 'sustainable road transport' component involves taxation changes, a beefed-up scrapping scheme for old diesel cars and investments to promote green transportation and infrastructure. The 'green transition of agriculture and the environment' component involves setting aside agricultural lands with high carbon soil content for environmental and climate purposes, and investment to promote (inter alia) organic farming, innovation and the rehabilitation of industrial sites and contaminated land.

Increasing investments in energy efficiency will also help to reduce GHG emissions. Denmark indicated a very low contribution to the EU energy efficiency 2030 targets in its draft NECP[18]. The 'energy efficiency, green heating and CCS' component contains measures to improve the energy efficiency of households, industry and public buildings. In addition, a CCS research project will explore the feasibility of storing CO2 (including from other Member States) in depleted oil and gas fields under the North Sea.

Denmark's recovery and resilience plan has a strong R&D focus, with more than 17% of the total spending earmarked for (green) R&D projects. Achieving Denmark's ambitious GHG emissions reduction targets also requires incentives for research and innovation. Therefore, the 'green research and development' component contains a temporary increase of R&D tax deductibility for all companies, while the mission-based R&D partnerships will focus on four solutions to address the challenges to achieving Denmark's ambitious climate goals. These include CCUS, green fuels for transport and industry, climate- and environment-friendly agriculture and food production and the reuse and reduction of plastic waste through the circular economy. The green research projects could lead to significant GHG reductions in the near

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[17] Denmark Country Report 2020 SWD/2020/503 final

[18] See European Commission, Assessment of the final national energy and climate plan of Denmark. SWD(2020) 903 final

future, for instance, new ‘power to X’ solutions have the potential to reduce Denmark’s GHG emissions by 0.5 to 3.5 megatons CO_2 per year by 2030.

Pillar II: Digital transformation

The plan extensively covers the second pillar, with several components targeting the digital transformation.

Denmark is already well advanced with respect to digitalisation, so this dimension of the twin transition is somewhat less pronounced in the plan. The digital component promotes a new digital strategy for all sectors of society, thus advancing welfare and equality, growth and employment, and the green transition. It shall also prepare the public administration for the emerging challenges in this area. The government has established a ‘digitalisation partnership’ consisting of top managers and experts from a wide range of stakeholders, including the Danish business community, municipalities and regions, academia and social partners. This expert group will make recommendations for the new digital strategy. Concrete measures will be announced by the end of 2021, and the adoption of the new strategy is provided for in the 2022 Finance Act. The future digital strategy will be framed by five objectives:

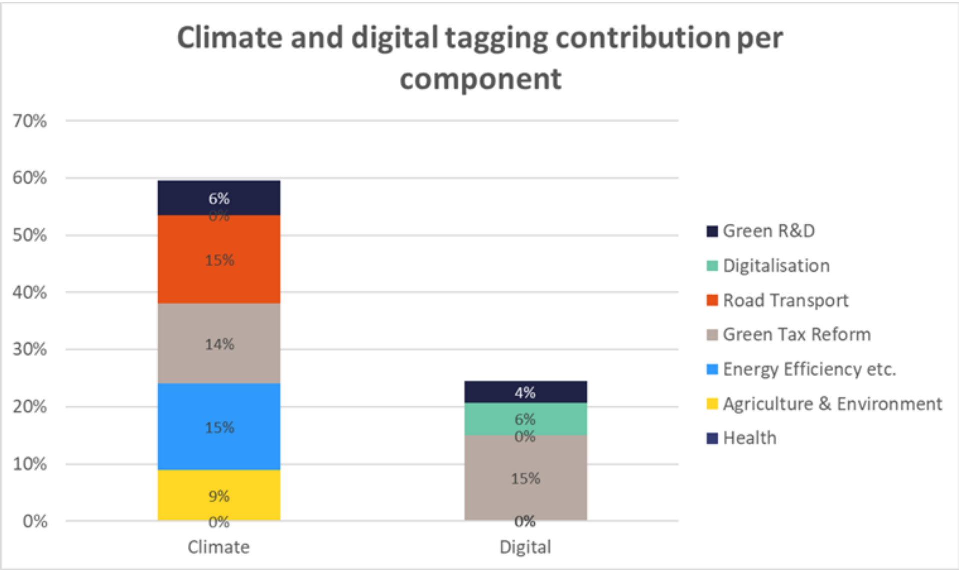
1. creating the digital public sector of the future by continuous modernisation of Denmark’s digital infrastructure, meeting the needs of all citizens and businesses, and strengthening connectivity;
2. securing the digital professions and jobs of the future by strengthening digitalisation in business and industry, supporting growth and the trading of goods and services;
3. creating better opportunities for co-creation and innovation by using new technologies and public-private partnerships to streamline and improve public digital services, accelerate the digital transition in businesses and support climate change mitigation;
4. creating a data-driven society by promoting better access to data, secure and interoperable data infrastructures, and a digital-ready regulatory framework to improve the digitalisation of SMEs, health systems and digital services; and
5. creating a framework for a Denmark fit for a digital future by enhancing cyber and IT security and digital skills.

The digitalisation component also contains a measure to foster the digitalisation of SMEs. The plan facilitates the prolongation of an existing scheme (*SME:Digital*), which provides subsidies for SMEs to digitalise their business. SMEs can apply for the grant on the condition that their projects will increase their use of technology and contribute to their growth.

The third measure proposed under the digitalisation component is the extension of the very high-speed internet broadband coverage. The plan allows the prolongation of an existing scheme for the intensified roll-out of very high-speed internet access (minimum 100 Mbps) to households and companies in rural areas. The scheme is an applicant-based funding scheme that provides grants for broadband projects in rural areas with poor coverage due to a lack of market incentives.

While substantial reforms are expected from the digital strategy, general tax schemes will contribute importantly to the digital transformation. Measures to increase the basis for depreciation of investments and deducting R&D taxes are expected to boost private investments to a large extent in innovation and digital technology, thereby contributing to the digital transition for all enterprises.

Graph 4.1. The components' contribution to climate and digital tagging



Pillar III: Smart, sustainable and inclusive growth, including economic cohesion, jobs, productivity, competitiveness, R&D&I and a well-functioning internal market with strong SMEs

The plan extensively covers the third pillar, as all components directly contribute to smart and sustainable growth. In this regard, the plan's focus on promoting the green and digital transitions will help the economy to grow on a more sustainable path. The initiatives funded by the plan are estimated to slightly increase GDP, employment and productivity over the medium and long term. Denmark is already among the best-performing EU countries as regards developing and taking up environmental technologies, and its competitiveness and trading performance can be further strengthened by the plan.

The plan opens new possibilities for SMEs to participate in climate-related R&D activities and involve more SMEs in research activities, thereby broadening the innovation base. Investments in R&D are expected to have a positive spill-over effect on productivity. In addition, the construction projects envisaged under the plan (such as building renovations) potentially support SMEs and local jobs. The SME digital support scheme can help them to overcome barriers to investment and expand the use of new and advanced technology and e-commerce solutions. Extending high-speed internet broadband coverage to areas where such connections have not existed before has the potential to link new SMEs into the digital economy.

The measures in the plan are expected to have a positive effect on the internal market and SMEs. A modernised and interoperable digital infrastructure will give people and businesses better access to public-sector digital infrastructure. The plan also includes measures to help businesses, in particular SMEs, to grow and to trading goods and services in the internal market.

Pillar IV: Social and territorial cohesion

The plan's coverage of the fourth pillar of social and territorial cohesion contributes to its overall balance. It provides cross-sectoral and cross-territory support for employment. In particular, measures to improve energy efficiency in industry and in public and private buildings are expected temporarily to boost local jobs and investments. Moreover, renovations will reduce energy bills, which absorb a larger proportion of less wealthy households' income. The measure to replace oil burners and gas furnaces will be particularly relevant for households with limited financing opportunities. Measures in the digitalisation component will also help to enhance social cohesion. The aim of the digital strategy is to promote a just and inclusive digital transformation that will support better welfare services and social cohesion, for instance through education and enhanced digital skills and competencies.

The measures under the plan are also expected to contribute positively to territorial cohesion. The telemedicine initiative has the potential especially to benefit people living in less densely populated areas, who often have to travel further to access medical treatment. The broadband initiative, which promotes high-speed internet access in rural areas, will also contribute to this objective. The measures aimed at helping farmers to adopt more ecological methods may also improve territorial cohesion. The measures will rehabilitate contaminated land and permanently improve local environments while generating economic activity in rural areas.

Pillar V: Health, and economic, social and institutional resilience, with the aim (inter alia) of increasing crisis preparedness and crisis response capacity

The plan's coverage of the fifth pillar contributes appropriately to its overall balance. The plan includes a dedicated component to strengthen the resilience of the healthcare system. Measures will support investments in infrastructure and logistics in order to ensure a sufficient supply of critical medical products. Digitalisation in this area will ensure that the new technologies and digital solutions discovered during the COVID-19 pandemic are used to create a more resilient and sustainable healthcare system, which is more coherent and closer to the people. The investments in infrastructure and logistics that are supported under the plan will ensure the availability of critical medical products, stronger monitoring of supply chains, coordination between the primary and secondary sectors, and a balanced national distribution of critical medical products in times of crisis. The clinical study on effects and side effects on COVID-19 vaccines will improve the evidence base for health policy, allowing for the implementation of more efficient vaccination programmes in the future.

The plan addresses the strengthening of the institutional capacity and resilience of public administration through the adoption of digital technologies. One of the main objectives of the digital strategy is to prepare the public administration for future challenges. In this regard, it will strengthen the resilience of the public administration. This will be done through modernising the digital infrastructure and capabilities of the public sector, enhancing cyber and information security in the public administration and promoting better access to data and interoperable data infrastructures.

Pillar VI: Policies for the next generation (children and young people), including education and skills

The plan covers the sixth pillar to some extent, notably through the digital component. The digital strategy aims to promote accessible and interoperable digital public services, for instance supporting digital skills and training. However, given the challenges that Denmark is facing and the size of its financial contribution, the less extensive coverage of this pillar through the RRF appears to be justified.

Taking into consideration all reforms and investments envisaged by Denmark, its recovery and resilience plan represents, to a large extent, a comprehensive and adequately balanced response to the economic and social situation, thereby contributing appropriately to all six pillars referred to in Article 3 to the RRF Regulation, taking the specific challenges and the financial allocation of Denmark into account. This warrants a rating of A under assessment criterion 2.1 in Annex V to the RRF Regulation.

4.2 Link with country-specific recommendations and the European Semester

The plan is ambitious in providing a response to a large set of challenges faced by the Danish economy. It introduces reforms and investments aimed at addressing the green and digital transitions, the resilience of healthcare, and research and development. Some CSRs, namely investment-related economic policy on education and skills (CSR 1.1 of 2019, some progress), measures to address the shortage of health workers (CSR 1.2/2020, some progress) and ensuring effective supervision and the enforcement of the anti-money laundering (AML) framework (CSR 2/2019, some progress, and CSR 3/2020, some progress), have been addressed, so measures in these areas were not incorporated in the plan.

The plan contains measures to increase the resilience of the healthcare system (CSR 1.2 of 2020, some progress). It involves infrastructure and logistics support to ensure stocks of critical drugs and the emergency management and monitoring of critical medical products. Greater digitalisation and use of telemedicine would ensure better and more equitable access to certain healthcare services. The COVID-related research study will examine the degree and duration of immunity and establish whether the effectiveness of vaccines differs across different population groups. These measures will help to create a more resilient and sustainable healthcare system.

The plan includes several general and targeted measures to support the digital transition (CSR 2.3 of 2020). The depreciation schemes under the green tax reform are expected to foster in particular digital investments. Targeted subsidy schemes will support SMEs' digitalisation efforts and help extend rural ultra-fast internet broadband coverage to previously non-covered areas. Substantial reforms are expected from the new digital strategy aiming to improve the digitalisation of public administration (for instance through the use of artificial intelligence) and prepare society for the new challenges (by adopting a new, more ambitious cybersecurity strategy).

The main objective of the plan is to accelerate the green transition (CSR 2.3 of 2020, some progress). The most significant reform initiative in the plan is its contribution to the green tax reform. First, this will finance a tax-subsidised 'investment window' to create an incentive for companies to accelerate their green investments before energy taxes are raised significantly from 2023. Secondly, an expert group will prepare recommendations to introduce a uniform tax on GHG emissions as a next step – paving the way for further ambitious GHG reductions.

The plan contains measures to improve efficiency in the clean and efficient production and use of energy (CSR 2.3 of 2020, some progress). As regards energy efficiency and conversion of heat supply, energy efficiency and new technology, biogas and new district heating capacity, the NECP estimates additional investment needs of DKK 10-30 billion for each of these three sectors in the period to 2030. The 'energy efficiency, green heating and CCS' component contains measures to increase the energy efficiency of households, industry and public buildings. Based on the recommendations from the Danish climate partnerships, Denmark will accelerate the conversion from oil and gas furnaces to electrical heat pumps, district heating and energy renovations in private and public buildings. Furthermore, the component contains subsidy schemes that target green renovations of buildings with poor energy performance and private households. In addition, a CCS research project will explore the feasibility of storing CO2 (including from other Member States) in depleted oil and gas fields under the North Sea. CCS is a key tool in Denmark's efforts to achieve its reduction targets.

The transport sector is the largest contributor in Denmark to the non-ETS sectors' emissions. This is why two CSRs were addressed to Denmark in order to focus investment on sustainable transport and tackle road congestion (CSR 2.4 of 2020, some progress, and CSR 1.3 of 2019, some progress). In addition, road congestion around larger cities, combined with the need to decarbonise the transport sector, points to investment opportunities in transport infrastructure (Denmark Country Report, 2019). The plan contains a specific 'sustainable road transport' component, including reforms and investments supporting the transition to the use of sustainable energy sources in the road transport sector. One of the reforms increases the incentive to choose green cars by means of a lower registration tax and a low tax on electricity to charge zero- and low-emission cars. The plan involves expanding the scrapping scheme for old diesel cars, in order to reduce the number of most-polluting cars. The component contains another measure paving the way for further reforms in this area through analyses, tests and campaigns that could support a further reduction in GHG emissions from road transport in the long term. Finally, it contains initiatives that promote and support green transportation and infrastructure, such as investments in bike paths.

The plan has a strong R&D focus, with more than 17% of the total spending earmarked for (green) R&D projects. This addresses CSR 2.5 of 2020, some progress. However, although overall R&D spending is high in Denmark, this has not translated into higher productivity growth. R&D&I investment is concentrated in a small number of large companies. Broadening this investment to a wider range of companies would promote innovation diffusion. The growing productivity gaps between large and small companies suggest weaknesses in this diffusion of technological advances.

The plan contains measures for broadening the innovation base to involve more companies (CSR 2.6 of 2020, some progress, and CSR 1.2 of 2019, limited progress). First, the measure on temporarily raising the general threshold for R&D tax deductibility has the potential to incentivise more companies to engage in R&D activities, thereby broadening the innovation base. Secondly, the green research partnerships will open new possibilities for SMEs to participate in climate-related R&D activities, involve more SMEs in research activities and promote innovation diffusion.

Ensuring the supply of labour in times of demographic and technological change and addressing labour shortages are key to fostering sustainable and inclusive growth in Denmark. Reforms and investments improving the attractiveness and relevance of vocational education and training (VET) and thereby increasing VET participation rates are likely to have a positive impact on the supply of skilled workers. Increasing ongoing investments in adult and lifelong learning and digital skills could also help in addressing this challenge. Furthermore, it would be beneficial to focus on a better integration of marginalised and disadvantaged groups in the labour market. In particular, this concerns young people with low educational attainment, people with a migrant background, and people with reduced work capacity and disabilities. In addition, the educational performance of children with a migrant background remains a challenge.

The plan has no specific measure on skills and competences (CSR 1.1 of 2019, some progress), but paves the way for future measures in this area. The aim of the digital strategy is to promote a just and inclusive digital transition that will support better welfare services and social cohesion, for instance through education and enhancing digital skills and competencies. Therefore, the Danish authorities expect that the Digital Partnership expert group will propose specific measures, which will be implemented after the digital strategy has been agreed later in 2021.

Taking into consideration the reforms and investments envisaged by Denmark, its recovery and resilience plan is expected to contribute to effectively addressing all or a significant subset of *challenges identified in the country-specific recommendations, or challenges in other relevant documents officially adopted by the Commission under the European Semester, and the plan represents an appropriate response to the country's economic and social situation. This warrants a rating of A under assessment criterion 2.2 in Annex V to the RRF Regulation.*

Table 4.2 Mapping of country challenges identified in 2019-20 country-specific recommendations and the Denmark RRP components[19]

Country challenges (as identified in Section 2)	Associated CSR (2019-2020) and European Semester recommendations	Component 1- Strengthening the Resilience of the Health Care System	Component 2- Green transition of Agriculture and the Environment	Component 3- Energy efficiency, green heating and CCS	Component 4- Green Tax Reform	Component 5- Sustainable Road Transport	Component 6- Digitisation	Component 7- Green Research and Development
Education and skills	2019 CSR 1.1 Focus investment-related economic policy on education and skills[20]							
Research and development	2019 CSR 1.2 research and innovation to broaden the innovation base to include more companies,							●
Sustainable transport	2019 CSR 1.3 and on sustainable transport to tackle road congestion.					●		
Anti-money laundering	2019 CSR 2 Ensure effective supervision and the enforcement of the anti-money laundering framework[21].							
Health care	2020 CSR 1.2 Enhance the resilience of the health system, including by ensuring sufficient critical medical products and addressing the shortage of health workers.	○						
Frontload public investment	2020 CSR 2.1 Front-load mature public investment projects and			○		○		
Promote private investment	2020 CSR 2.2 promote private investment to foster the economic recovery.		○	○	●	○	○	○
Green and digital transition	2020 CSR 2.3 Focus investment on the green and digital transition, in particular on clean and efficient production and use of energy,		○	●	●	●	●	●
Sustainable transport	2020 CSR 2.4 sustainable transport					●		
Research and development	2020 CSR 2.5 as well as research and innovation.							●

[19] The recommendations related to the immediate fiscal policy response to the pandemic can be considered as being addressed outside the plan. Denmark has generally responded adequately and sufficiently to the immediate need to support the economy through fiscal means in 2020 and 2021, in line with the provisions of the General Escape Clause.

[20] This CSR was addressed outside the plan.

[21] This CSR was addressed outside the plan.

Research and development	2020 CSR 2.6 Support an integrated innovation strategy with a broader investment base.							●
Anti-money laundering	2020 CSR 3 Improve the effectiveness of anti-money laundering supervision and effectively enforce the anti-money laundering framework.[22]							

Key: "●" investments and reforms of the component significantly address the challenge; "○" the component partially addresses the challenge

4.3 Growth potential, job creation, economic, institutional and social resilience, European Pillar of Social Rights, mitigating the impact of the crisis, and social territorial cohesion and convergence

Fostering economic growth and jobs

Overall, the plan is expected to contribute positively to GDP growth and is in line with the EU update of the 2020 new industrial strategy[23]. In 2021-2023, the positive impact is stronger as firms are expected to bring forward their investments to benefit from the tax rebates of the investment window. From 2024 onwards, the GDP growth effect of the green tax reform is expected to be slightly negative, due to the discontinuation of the investment window and the increase in taxes on energy consumption that are part of the second stage of the green tax reform. Over the medium and longer term, the plan is expected to enhance productivity. The long-term GDP effect is 0.12%, according to national estimates. The plan is also expected to contribute to employment, notably in 2021-2022, driven by the investment window. While the net effect of the green tax reform on employment turns negative from 2024 onwards, this is outweighed by the positive impact of the other components, notably energy efficiency, green heating and CCS, and the sustainable road transport component.

[22] This CSR was addressed outside Plan.

[23] See European Commission, *Updating the 2020 New Industrial Strategy*, COM(2021) 350 final, 05.05.2021

Box 2 – Stylised NGEU impact simulations with QUEST - Denmark

Model simulations conducted by the Commission using the QUEST model show that the economic impact of the NGEU in Denmark could lead to an increase of GDP of between 0.4% and 0.6% by 2024.[24] After 20 years, GDP could be 0.1% higher. Spill-overs account for a large part of such impact.

According to these simulations, this would translate into up to 8,000 additional jobs. Cross border (GDP) spill-overs account for 0.5 pps in 2024, showing the value added of synchronised expenditure across Member States (line 2). Even in a scenario with a lower productivity of NGEU funds, it would still lead to a significant impact (line 3).[25]

Table: QUEST simulation results (%-deviation of real GDP level from non-NGEU case, linear disbursement assumption over 4 years)

Scenario	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2040
Baseline	0.5	0.7	0.7	0.6	0.5	0.4	0.3	0.3	0.2	0.2	0.1
of which spillover	0.5	0.5	0.5	0.5	0.4	0.3	0.2	0.2	0.1	0.1	0.0
Low productivity	0.3	0.3	0.4	0.4	0.3	0.2	0.2	0.1	0.1	0.1	0.0

This stylised scenario does not include the possible positive impact of structural reforms, which can be substantial. A model-based benchmarking exercise shows that undertaking structural reforms that would result in halving the gap vis-à-vis best performers in terms of indicators of structural reforms could raise Denmark GDP by up to 7% within 20 years' time, in line with findings for the EU average[26].

Due to the differences in the assumptions and methodology, **the results of this stylised assessment cannot be directly compared to the numbers reported in chapter 4 of Denmark's plan.**

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[24] RRF amounts to roughly 90% of NGEU, which also includes ReactEU, Horizon, InvestEU, JTF, Rural Development and RescEU.

[25] Technically, the low productivity scenario considers a significantly reduced output elasticity of public capital.

[26] Varga, J, in 't Veld J. (2014), "The potential growth impact of structural reforms in the EU: a benchmarking exercise", European Economy Economic Papers no. 541.

http://ec.europa.eu/economy_finance/publications/economic_paper/2014/pdf/ecp541_en.pdf .

Strengthening social resilience

The plan is expected to contribute to maintaining a high degree of social cohesion through increased employment in rural areas and by extending digital services. As regards component 2 (focusing on the agricultural sector), the initiatives aim to provide farmers with economic incentives to reduce GHG emissions, while taking account of their particular circumstances and to ensure social and territorial cohesion and convergence. The agricultural reform also involves R&D investments that promote sustainable growth in the sector and the creation of high-quality employment. As regards component 3 (energy efficiency, green heating and CCS), renovation and measures to ensure energy efficiency are expected to temporarily boost local jobs and investments. Moreover, the investment in renovation will also reduce energy bills, which account for a larger proportion of less wealthy households' income. As regards component 6, which focuses on digitalisation, the broadband initiative promotes high-speed internet access in rural areas. The aim of the digital strategy is to promote a just and inclusive digital transition that will support better welfare services and social cohesion, for instance through education and enhancing digital skills and competencies.

Reducing vulnerability and increasing resilience

The plan contributes to strengthening Denmark's economic, institutional and social resilience. Economic resilience is notably strengthened by the green tax reform depreciation schemes, which will support Danish companies, and SMEs in particular. More generally, several digital and R&D-related measures could help to strengthen economic resilience. Institutional resilience is considered high in Denmark, with well-functioning institutions. The implementation of the plan could improve it further, with a focus on strategy, implementation, delivery and results. The first component, relating to healthcare contributes to social resilience. It comprises new initiatives strengthening the resilience of the healthcare systems in Denmark. This includes investments in infrastructure to ensure critical medical supplies and in IT solutions so as to maintain broad access to healthcare.

The measures should reinforce the resilience of Denmark and its capacity to absorb economic and social shocks. This is notably ensured by the measures in the healthcare system and the digital partnership. The plan includes measures supporting SMEs, such as a digitalisation fund to strengthen SMEs' digital transition and trade.

The objectives of the initiatives in the plan reflect both short- and long-term perspectives, with the aim of supporting the Danish economy in the recovery from the pandemic, as well as supporting Denmark's long-term growth and the green transition. For instance, several of the initiatives can be expected to have a positive effect on the long-term growth potential of the Danish economy. Public investment in energy efficiency, green heating and CCS, and sustainable road transport are expected to increase long-term productivity and potential GDP.

Cohesion and convergence

Taken together, several components and measures elaborated in this section are expected to support social and territorial cohesion and convergence. For instance, the strategic digitalisation effort in the component 'strengthening the resilience of the healthcare system' will ensure that the new technologies and digital solutions discovered and increasingly used during the COVID-19 pandemic can be used to create a more resilient and sustainable healthcare system, which is more coherent and closer to the patient. To address the structural challenges of the agricultural sector, the measures in the component 'green transition of agriculture and environment' aim to provide farmers with economic incentives to reduce GHG emissions, taking into account their particular circumstances. This is expected to ensure social and territorial cohesion and convergence, in particular given that employment and social cohesion in especially rural areas are dependent on the ongoing competitiveness of the sector.

The component 'energy efficiency, green heating and CCS' will support social coherence and resilience by maintaining adequate infrastructure to deliver high-quality public services. Moreover, the energy-saving renovations will temporarily increase the number of local jobs and investments, and permanently reduce energy bills, which account for a larger proportion of less wealthy households' income. Improving energy efficiency contributes to a cost-efficient way of realising the target of climate neutrality by 2050.

Initiatives to create the digital public sector of the future by a continuous modernisation of the digital infrastructure are conducive to territorial cohesion. In particular, the broadband pool will promote high-speed internet access for individuals, shouseholds and companies in less densely populated areas across the country, which will enable everyone to take part in the upward social and economic convergence driven by digitalisation. This will be further ensured by determining the distribution of funds and drafting the digital strategy in close collaboration with a broad range of actors in civil society.

Equality

The plan contains some measures that are expected to help address the country's challenges in the area of gender equality and equal opportunities for all. While equality considerations could have been mainstreamed more prominently, a number of specific measures address these considerations. These include measures promoting the use of digital solutions in the healthcare sector and supporting the health of vulnerable (e.g. older) people. Provisions are also made to integrate the gender balance and diversity of research teams in the overall assessment of applications for the green R&D programme. Equality considerations are also expected to be integrated in the design of the new digital strategy and any subsequent legislative changes. The expected contribution to equal opportunities for specific groups, in particular people with a minority racial or ethnic background, is not further elaborated in the plan. Maximising synergies between the plan and several equality-related legislative and policy actions referred to in the plan will be essential for a comprehensive response to the identified challenges.

Taking into consideration all reforms and investments envisaged by Denmark, its recovery and resilience plan is expected to have a high impact on strengthening the growth potential, job *creation, and economic, social and institutional resilience of the Member State, on contributing to the implementation of the European Pillar of Social Rights, including through the promotion of policies for children and youth, and on mitigating the economic and social impact of the COVID-19 crisis, thereby enhancing economic, social and territorial cohesion and convergence within the Union. This warrants a rating of A under assessment criterion 2.3 in Annex V to the RRF Regulation.*

Box 4.3: **Employment and social challenges in light of the Social Scoreboard accompanying the European Pillar of Social Rights**

Social Scoreboard for DENMARK	
Equal opportunities and access to the labour market	Early leavers from education and training (% of population aged 18-24) (2020)
	Youth NEET (% of total population aged 15-24) (2020)
	Gender employment gap (2020)
	Income quintile ratio (S80/S20) (2019)
	At risk of poverty or social exclusion (in %) (2019)
Dynamic labour markets and fair working conditions	Employment rate (% population aged 20-64) (2020)
	Unemployment rate (% population aged 15-74) (2020)
	Long term unemployment (% population aged 15-74) (2020)
	GDHI per capita growth (2019)
	Net earnings of a full-time single worker earning AW (2019)
Social protection and inclusion	Impact of social transfers (other than pensions) on poverty reduction (2019)
	Children aged less than 3 years in formal childcare (2019)
	Self-reported unmet need for medical care (2019)
	Individuals' level of digital skills (2019)

Critical situation	To watch	Weak but improving	Good but to monitor	On average	Better than average	Best performers

Update of 29 April 2021. Members States are classified on the Social Scoreboard according to a statistical methodology agreed with the EMCO and SPC Committees. It looks jointly at levels and changes of the indicators in comparison with the respective EU averages and classifies Member States in seven categories. For methodological details, please consult the Joint Employment Report 2021; NEET: neither in employment nor in education and training; GDHI: gross disposable household income.

The Social Scoreboard supporting the European Pillar of Social Rights points to a well-performing labour market and good social outcomes in Denmark. The Danish labour market was performing well prior to the outbreak of COVID-19 and has shown resilience to the pandemic. The employment rate is still relatively high, at 77.8%, with a comparatively low gender employment gap. Wholesale and retail trade, and accommodation and food service activities are the areas most affected by the crisis. However, the government's wage compensation scheme prevented a surge in the unemployment rate. The long-term unemployment rate remains lower than the EU average.

The share of the population reporting unmet needs for medical care has increased in recent years. The Danish population reports a good health status, with small differences nationally for services covered by public health insurance. Self-reported unmet needs for medical care have nonetheless increased. This could be related to a potential shortage of physicians in primary care and care coordination, with general practitioners' availability to take in new patients varying between regions.

Denmark is among the best performers in terms of formal childcare participation and equal access to the labour market. Around 66% of children aged under 3 are in formal childcare (compared to the EU average of 35.3%). Subsidised childcare provision is among the factors supporting the relatively high female employment rate (74.1% against an EU average of 66.3%).

Denmark's recovery and resilience plan prioritises a green recovery, job creation, digitalisation and health, addressing some employment challenges relevant for the implementation of the Pillar. The plan has a clear focus on green reforms and envisages the strengthening of the digital skills and competencies necessary for the future, both for the private and public sectors. Furthermore, the digital component of the plan includes a focus on closing the digital divide and ensuring inclusive access to digital public services for all. Concrete initiatives to reach these objectives are to be based on the findings of a recently launched Digital Partnership, consisting of experts and stakeholders.

4.4 The principle of 'do no significant harm'

The plan assesses compliance with the 'do no significant harm' (DNSH) principle. The assessment follows the methodology set out in the Commission's technical guidance on the application of the principle under the RRF Regulation (2021/C 58/01). It covers the six environmental objectives referred to in Article 17 to Regulation (EU) 2020/852[27], namely climate change mitigation, climate change adaptation, sustainable use and protection of water and marine resources, circular economy, pollution prevention and control, and protection and restoration of biodiversity and ecosystems. The environmental impact is assessed in relation to each reform or investment, so the 6 reforms and 33 investments in the plan translate into 39 DNSH assessments.

Each DNSH assessment follows a two-step approach. The first step assesses whether there is a risk that a measure could do significant harm to one or more of the environmental objectives. When there is no risk of significant harm, the measure assessed complies with the objective of the Regulation. When a risk of significant harm is identified, a more detailed assessment follows in step two, in which Denmark demonstrates the absence of significant harm. Results of the two-step approach are often conflated into one table for conciseness.

The plan puts a particular focus on agriculture and environment (component 2). The proposed measures have a positive impact on emission reductions. Denmark ensures no significant harm to biodiversity and ecosystems by recalling the strict regulatory obligations in terms of environmental protection (i.e. Nature Protection Act and other relevant legislation) and targeted analysis attributed to each project. In this way, the plan ensures, for instance, that rewetting carbon-rich soils, or the rehabilitation of industrial sites and contaminated land will not undermine existing habitats.

The plan dedicates one component to energy renovation measures (component 3). While these have a positive impact on emission reductions, the measures also need to ensure the energy efficiency of retrofitted equipment and prevent burden to circular economy. For example, Denmark confirms that the 'replacement of oil burners and gas furnaces' in terms of effects on circular economy and zero pollution would be aligned with the standards set out in the EU taxonomy Climate Delegated Act. As regards 'energy saving in public buildings', it confirms that the measure will respect the DNSH requirements on the sustainable use of water, circular economy and zero pollution. Concerning CCS, Denmark provided a more detailed assessment

[27] Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 June 2020 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088 (OJ L 198, 22.6.2020, p. 13).

for three of the six environmental objectives and confirmed that the measure will not lead to new oil/hydrocarbon extraction and that it will achieve compliance with the CCS Directive[28].

The plan includes a measure relating to green tax reforms (component 4). In this context, Denmark confirms that the investment window would not support fossil-fueled machineries. In addition, fossil-fuel vehicles will not be benefit from national support.

The plan focuses on sustainable road transport (component 5). Denmark confirms that no support would be given, through the lower registration tax, to cars emitting more than 50g of CO2 per km, thus respecting the climate change mitigation objective. It confirms that the acquisition of green ferries supported by the RRF would be aligned with the standards detailed in the draft EU taxonomy Climate Delegated Act, including EU law and International Maritime Organization rules.

Another focus area in the plan is digitalisation (component 6). The component mostly involves a set of five reforms consisting of implementing a digital partnership, with little risk of impairing any of the six environmental objectives. SMEs will receive consultancy support to promote their digital transition and trading activity. In this context, Denmark has satisfactorily demonstrated that the component will meet the DNSH requirements.

Denmark proposes a component aiming to boost green R&D (component 7). The component does not significantly jeopardise the six environmental objectives. The plan clarifies that projects under the 'green partnerships' will be subject to selection criteria to ensure compliance with the DNSH principle. The Danish authorities have confirmed that no private R&D investments benefitting from the tax deduction will conflict with the DNSH principle. Any that do will be screened out from the application process.

Taking into consideration the assessment of all the measures envisaged, no measure for the implementation of reforms and investment projects included in Denmark's recovery and resilience plan is expected to do significant harm to environmental objectives within the meaning of Article 17 to Regulation (EU) 2020/852 (the principle of 'do no significant harm'). This warrants a rating of A under assessment criterion 2.4 in Annex V to the RRF Regulation.

[28] Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No 1013/2006 (OJ L 140, 5.6.2009, p. 114).

4.5 Green transition

Denmark has satisfactorily met the requirements of the Regulation in terms of tagging and green transition. The components relating to energy efficiency (component 3), the green tax reform (component 4) and sustainable road transport (component 5) will account for 75% of the climate tracking.

Climate target

Table 4.5 Climate tagging by component, percentage

Overall climate tagging by component

EUR in thousands	Cost	Climate tag	%
1. Strengthening the Resilience of the Health Care System	32,816	-	0%
2. Green transition of Agriculture and the Environment	177,532	139,873	9%
3. Energy efficiency, green heating and CCS	234,691	234,691	15%
4. Green Tax Reform	580,474	196,495	13%
5. Sustainable Road Transport	258,228	241,685	16%
6. Digitisation	89,438	-	0%
7. Green Reseach and Development	242,088	109,343	7%
Total	1,615,268	922,088	n.a.
Financial contribution allocated to Denmark	**1,551,401**	**922,088**	**59%**

In component 3 (energy efficiency), extensive use is made of intervention field 025 bis, relating to the replacement of oil burners. This is accompanied by a confirmation that the investments will lead to at least 30% of ‘primary energy saving’. This commitment has also been reflected in the relevant milestone of the component.

In component 4 (green tax reform), intervention field 027 is used for the investment window and the accelerated depreciation. This follows a thorough justification of the share of green investments in the measures and is based on analysis of similar measures approved in the past.

In component 5 (sustainable road transport), intervention field 074 is used for the measure relating to lower registration (applied only to zero-emission vehicles). Denmark has explained that the RRF would support exclusively zero-emission vehicles, while the complementary national support would also target such vehicles (for instance less than 50g of CO_2 emission by km and by vehicle). Denmark has confirmed that the intervention field used for green ferries will apply only to zero-emission ferries.

Green transition

The plan will include a significant number of measures with a clear contribution to the green transition, including biodiversity.

The sustainable agriculture component ('green transition of agriculture and environment') is key for the green transition. The Danish farm sector is responsible for about a third of the country's GHG emissions. Investments in R&D projects are expected to deliver reductions in GHG emissions by an estimated 0.1 megatons by 2030, while minimising the reduction in production output. New technologies in the agricultural sector – notably brown bio-refining utilising pyrolysis technology – are estimated to hold a technical potential for further reductions by 2 megatons in 2030. Furthermore, taking carbon-rich soils out of production and promoting the transition to organic farming are expected to lead to significant reductions of nitrogen emissions in agriculture. Funds will be allocated to rehabilitate industrial sites and contaminated lands, thereby removing dangerous substances and hazardous waste from natural ecosystems. The proposed measures should positively contribute to the improvement of the ecological status of water bodies in the targeted areas and further support biodiversity.

The energy efficiency component ('energy efficiency, green heating and CCS') will contribute to significant decreases in energy consumption and GHG emissions. Through this component, Denmark seeks to prioritise additional initiatives based on the recommendations from the Danish climate partnerships to generate social, environmental and economic benefits by stimulating job-creation and raising the growth potential, while contributing to the green transition by reducing GHG emissions by 0.1 Mt in 2030. Proposed initiatives target the green energy renovation of buildings with poor energy performance and the replacement of oil burners and gas furnaces with electric heat pumps and district heating in order to reduce energy consumption and GHG emissions.

The green tax reform will accelerate the decarbonisation of the economy. The impact of this component is twofold. First, in order to provide companies with the incentive and the opportunity to accelerate the green transition and prepare for the carbon tax, the reform includes tax deductions for frontloading investments. This is mainly aimed at giving companies incentives to invest in green and digital technologies, while simultaneously helping Denmark to recover from the COVID-19 recession. These measures are expected to lead to increased demand, a rise in employment, lower GHG emissions and further digitalisation. Against this background, the first phase of the green tax reform will lower GHG emissions by 0.5 megatons by 2030. For the second phase of the reform, an expert group will draw up a roadmap for CO2e taxation in a manner consistent with protecting competitiveness, social balance and minimal leakage. The long-term ambition is to make a comprehensive tax reform with a high, uniform CO2e tax on all emissions.

The sustainable road transport component will accelerate the decarbonisation of the transport sector. It is composed of four elements. Firstly, a lower registration tax will give more consumers an incentive to choose zero- and low-emission cars. More specifically, the tax on electricity for zero- and low-emission vehicles will be lowered. This first subset of measures also includes a premium for scrapping old diesel cars in order to ensure that older cars are rapidly exchanged for new and less polluting cars. Moreover, a series of studies and tests will be carried out in order to accelerate the decarbonisation of roads (promotion of car-pooling, optimisation of heavy haulage transportation, optimisation of road pricing). The component also contains investments aimed at expanding the use of bicycles, through the construction of charging stations or cycle paths, as well as a measure subsidising the purchase of zero- or low-emission ferries.

Lastly, a component will be dedicated to the promotion of R&D projects aimed at accelerating the green transition. As explained in section 4.1, the component will fund four R&D missions and support for private R&D. The four missions focus on CCS and use of CO2, green fuels, climate-friendly agriculture and circular economy. These areas have shown potential to reduce GHG emissions. It follows the Danish climate partnerships' recommendations to target research, development and demonstration efforts within these four missions. Lastly, the component includes a tax incentive for companies to focus their investments in R&D, of which 10% will be dedicated to green R&D projects.

In conclusion, Denmark presents an ambitious green plan with 59% climate tagging. Moreover, Denmark's recovery and resilience plan is in line with the objective and targets indicated in its National Energy and Climate Plan, and even goes further in some areas, notably in the promotion of energy efficiency.

Taking into consideration the assessment of all the measures envisaged, the Danish recovery and resilience plan is expected, to a large extent, to make a significant contribution to the green transition or to address the related challenges and ensures that at least 37% of its total allocation contribute to the climate target. This warrants a rating of A under criterion 2.5 in Annex V to the RRF Regulation.

4.6 Digital transition

Digital tagging

Reforms and investments contributing to digital objectives account for 24.5% of the plan's total allocation. The most important contribution to this target are the depreciation schemes under component 4 (green tax reform), component 6 (digitalisation component) and component 7 (green R&D tax incentive).

Table 4.6. Overall digital tagging per component

Component	Measure	Budget (m DKK)	% of digital	Tag (m DKK)	Tag (%)
1. Strengthening the resilience of the health care system	Digital solutions in the health care sector	14	100%	14	0,1%
4. Green tax reform	Investment window	3029	40%	1212	10,4%
4. Green tax reform	Accelerated depreciation	1280	40%	512	4,4%
6. Digitalisation	Digital strategy	500	100%	500	4,3%
6. Digitalisation	Broadband pool	100	100%	100	0,9%
6. Digitalisation	SMEs' digital transition and export	65	100%	65	0,6%
7. Green research and development	Incentives to boost R&D in companies	1100	40%	440	3,8%
		6088	**46,7%**	**2843**	**24,5%**

The plan follows the methodology for digital tracking set out in the Regulation. The choice of intervention fields for the digital transition is well justified and reflects the nature, focus, objective or expected outcome of the investments included in the component. For some measures, the plan applies the digital tag at the sub-level of a measure. This is the case for general measures such as tax schemes, which by nature do not include a specific digital objective but which by design will contribute to the digital transition. In those cases, the tagging is applied to a conservatively estimated share of expenditure. Finally, the plan does not propose increasing the digital coefficient for any measure.

Digital transition

The plan contains several measures to support the digital transition, notably for SMEs, and address challenges resulting from it. The digital component aims to support the digital transformation across all sectors of the Danish economy and society. The main reform is the adoption and implementation of a new and ambitious digital strategy, building on the recommendations of an expert group ('digitalisation partnership'). The main deliverables of this reform will be adopted at the end of 2021, including possible reforms and investments to boost the digital transition. As the strategy covers both the public and private sectors and aims to increase substantially the resources given to the public administration and private actors, it is considered to contribute substantially to the digital transformation of the society and economy. In addition, the component includes investment to support the digitalisation of SMEs and to extend rural ultrafast internet broadband coverage where such networks are still not available. This will help close the digital divide by improving connectivity also in remote regions.

The measures in the plan are expected to contribute to the three key objectives of the Commission's digital strategy, '**Shaping Europe's digital future**'. As regards the objective of *developing technology that works for people*, Denmark's new digital strategy will implement solutions to digitalise the public sector by ensuring interoperability. It will also develop a new cybersecurity strategy and invest in digital human capital through actions to provide people with digital skills. Measures to increase the basis for depreciation of investments and deducting R&D from taxes will also boost private investments in innovation and digital technology. The plan will also contribute to the objective of creating a fair and competitive economy. The *SME:Digital* programme will provide support to digitalise SMEs. This will strengthen their position on the internal market and allow them to compete on equal terms with other companies. It will contribute to their ability to develop, market and use digital technologies, products and services at a scale that boosts their productivity and competitiveness. Finally, measures in the digital strategy may also contribute to the objective of creating an open, democratic and sustainable society by implementing e-ID, which will provide people with access to their data.

The general tax measures combined with targeted SME support schemes will foster the digitalisation of businesses. Measures to increase the basis for depreciation of investments and deducting R&D taxes account for almost 50% of the plan's total budget and boost private investments in innovation and digital technology. The plan allows the scaling-up of the existing *SME:Digital* support scheme, which supports inter alia implementation of new e-commerce solutions, technical support for start-ups, development, integration of digital sales for new international markets and the purchase of new technologies and digital solutions, e.g. automation technology and software. The plan provides for a DKK 65 million budget for this measure, complemented with significant national resources. With SMEs receiving DKK 100 000 subsidies, this will allow support for an additional 550 SMEs. Extending high-speed rural broadband coverage to areas where such connection was not available before on market terms will allow the digitalisation of several new SMEs and help them to upscale their operation. The plan is expected to provide DKK 100 million under the 'broadband pool', which could finance the connection of approximately 3 500 - 5 000 households and/or companies.

The digital strategy also embeds important reforms in business digitalisation. The expert group suggesting new measures includes representatives of SMEs. The objective of the 'securing digital professions and the digital jobs of the future' sub-reform is to strengthen the digitalisation and digital readiness of Danish companies, in particular SMEs, and to support their access to employees with adequate digital and technological skills, and the use of advanced technologies. This will help ensure that the digital transition is used to support good and well-paid jobs, increase Danish companies' productivity and competitiveness and ensure a readiness for change and robust business. Examples of possible measures securing digital professions and the digital jobs of the future could include:

(1) strengthening the standardisation and automation of key bookkeeping and accounting processes in SMEs;
(2) developing and implementing a national electronic platform for public procurement; and
(3) focusing on getting more people in the workforce with science, technology, engineering and mathematics (STEM), including IT, competencies.

Additional reforms under the digital strategy will establish a framework for addressing numerous important challenges as regards digitalisation, including data usage, artificial intelligence and cybersecurity, to guide and support Danish companies' digitalisation efforts.

The plan focuses on important future reforms when it comes to digitalising the public administration. The main reform in this respect will be implemented through the digital strategy in the digitalisation component, while the health component includes additional measures focusing on the health sector.

The new digital strategy sets out five sub-reform areas, of which four involve digitalising the public administration and preparing it for future challenges, thereby creating a long-

lasting impact. These measures will help further to strengthen the interoperability capacities of the public administration's digital services. The digital strategy is currently under development. It is being developed through a bottom-up approach whereby it is possible to gather experiences and input from key business stakeholders. The final strategy will be presented at the end of 2021 and does not contain concrete measures at this stage. However, to ensure its successful implementation and impact, it is anchored in ambitious milestones and targets.

The objective of the 'creating the digital public sector and services of the future' sub-reform is to modernise digital infrastructure, public services and public administration, and address interoperability between central, regional and local administrations, the acceleration of administrative processes and the improvement of the digital interaction between administrations, citizens and businesses. The modernisation of the national digital infrastructure will also support the development and implementation of cross-border and interoperable digital services, such as e-ID and the single digital gateway.

The objective of the 'better opportunities for co-creation, public-private partnerships and innovation' sub-reform is to contribute to the modernisation of the economy, digital infrastructure, digital public services and public administrations. It will do so by investing in innovation and development, and upscaling new technologies and solutions, including artificial intelligence deployed in the public and private sectors. This could help improve public services and the competitiveness of businesses and contribute to the green transition using advanced digital technologies.

The objective of the 'creating a data-driven society' sub-reform is to provide a better overview of data, including public data, and to improve the accessibility of data on climate, environment, geography and health to support businesses and researchers in the development of new, better and/or citizen-centred solutions. Measures could include strengthening coherence between IT and legislation to secure the translation of legislation into the public digital administration or make data available as a basis for the development of new business models.

The objective of the 'Denmark fit for a digital future' sub-reform is to prepare recommendations and initiatives for the future direction of Denmark's digitalisation. Possible measures could include a new, more ambitious strategy for cyber and information security that will:

- raise awareness and help citizens, businesses and authorities protect themselves digitally;
- address the security and resilience of critical sectors of society; and
- strengthen national coordination and cooperation on cyber and information security, the promotion of teaching in digital skills in schools, enrolment in higher specialised IT education and enhanced digital skills among public employees in central government, regions and municipalities.

The new digital strategy is also expected to address the challenges of the digital transition, namely by investing in the digitalisation of companies and in digital skills. The fifth sub-reform, 'securing digital professions and the digital jobs of the future', will strengthen the digital readiness of companies, in particular SMEs, and provide employees with adequate digital skills. To strengthen companies' digital readiness, the sub-reform will include solutions to facilitate their access to digital infrastructures, such as increasing the standardisation and automation of book-keeping and developing a national electronic platform for public procurement. To provide employees with digital skills, it will focus on getting more people in the workforce with STEM, including IT, competencies.

Finally, digital measures in the health component aim to make the sector more resilient. The component's digitalisation measure will ensure that new technologies and digital solutions developed during the COVID-19 pandemic are used to create a more resilient and sustainable healthcare system.

Taking into consideration the assessment of all the measures envisaged, the Danish recovery and resilience plan is expected, to a large extent, to make a significant contribution to the digital transition or to address the challenges resulting from it, and ensures that at least 20% of its total allocation contribute to digital objectives. This warrants a rating of A under criterion 2.6 in Annex V to the RRF Regulation.

4.7 Lasting impact of the plan

One key objective of the plan is to reduce CO2 emissions. To this end, the Danish authorities have calculated the reduction of CO2 from the implementation of each measure.

Table 4.7. CO2 emission savings by 2030 (Mt), by component

Component	CO2 emission savings by 2030 (Mt)
Strengthening the resilience of the healthcare system	0
Green transition of agriculture and environment	0.1
Energy efficiency, green heating and CCS	0.1
Green tax reform (phase 1)	0.5
Sustainable road transport	2.1
Digitalisation	0
Green research and development	0

Several of the initiatives financed by the RRF are the subject of political agreements that extend beyond 2025, for instance beyond the timeline of the RRF. These include the green tax reform and the Sustainable Road Transport Agreement**.** In the medium-to-long term, such initiatives will be financed within the overall fiscal framework in Denmark. Furthermore, many of the initiatives (for instance the green tax reform) are supported by a broad political coalition, which ensures political support beyond the current electoral period. Therefore, the initiatives are assessed to be sustainable well beyond 2025.

The implementation of the envisaged reforms and investments is expected to bring about structural changes in the economy. Raising energy taxes (and later the introduction of a uniform GHG emissions tax) should accelerate the green transformation of the economy, making

Denmark one of the frontrunners in reducing GHG emissions. The other RRF measures and investments support these objectives coherently and efficiently, for instance by focusing funding on sectors with the largest GHG emissions (transport and agriculture) and improving energy efficiency at the same time. The plan's ambitious R&D projects could have a long-lasting positive impact on climate objectives (for instance by improving CCS). Stronger management systems for critical supplies in the health sector should contribute to its long-term resilience.

Several components in the plan support social and territorial cohesion and convergence, which is expected to have an effect also in the long term. The measures to strengthen the resilience of the healthcare system, which include integrating new technologies and digital solutions discovered during the COVID-19 pandemic into the healthcare system to make it more resilient and sustainable, have the potential to become long-lasting solutions and to meet the increasing needs and pressures in the sector.

The Danish agricultural sector faces structural challenges, which makes it vulnerable to increases in costs as a result of the green transition and declines in earnings. Employment and social cohesion especially in rural areas are dependent on the continued competitiveness of the sector. Therefore, the initiatives aim to provide farmers with economic incentives to reduce GHG emissions (while taking account of their particular circumstances) and to ensure social and territorial cohesion and convergence. The agricultural reform also involves R&D investments that promote sustainable growth in the agricultural sector and the creation of high-quality employment.

Digitalisation: The initiatives aim to create the digital public sector of the future by a continuous modernisation of the digital infrastructure, meeting the needs of all citizens and businesses, and strengthening connectivity. In particular, the broadband pool will promote high-speed internet access for citizens, households and companies in less densely populated areas across the country, which will enable everyone to take part in the upward social and economic convergence driven by digitalisation. This will be further ensured by determining the distribution of funds and the drafting of the digital strategy in close collaboration with a broad range of actors in civil society.

Taking into consideration all reforms and investments envisaged by Denmark in its recovery and resilience plan, their implementation is expected, to a large extent, to bring about a structural change in relevant policies and to have a lasting impact. This warrants a rating of A under criterion 2.7 in Annex V to the RRF Regulation.

4.8 Milestones, targets, monitoring and implementation

Adequacy of the structure tasked with the implementation of the plan, monitoring of progress and reporting

Milestones and targets

The plan includes 39 milestones and 38 targets that reflect the lifecycle of the measures. They are both front- and back-loaded, as the majority of the milestones concern the first year and only targets apply for the later years. It should be noted that targets set at the beginning of the lifetime of the RRF relate mainly to the topping-up of existing successful schemes. In this regard, the roll-out of the measure can be quick and the risk of non-completion of those targets is considered low.

The milestones and targets in the plan are clear and realistic. The number of milestones or targets per measure (between one and three) is a reasonable reflection of the lifecycle of a measure. The milestones and targets appropriately reflect the different stages of implementation of reforms and investments. In this regard, they often relate to the setting-up or entry into force of a measure and include at least a final output target that appropriately and realistically measures whether the objective of the measure has been achieved. The milestones and targets are therefore consistent with the long-term objectives of the measures.

A number of milestones stem from political agreements between minority governments (which are common in Denmark) and the majority of parties in the parliament. In the specific case of Denmark, the political agreement reflects a key step in deciding on the key parameters of a measure and provides sufficient guarantee that it will be implemented. These political agreements have been translated into additional milestones specifying the relevant legislative action to be taken.

The proposed indicators are relevant, acceptable and robust. They are easily measurable and relevant markers of progress in implementing the measures. Overall, the indicators are under the control of the government, as they either reflect an input provided by the government or, for most targets, an output. Few indicators can be expected to be influenced by factors outside the government's control. Given their limited number, the risk of non-completion is considered low.

The ambition of some of the indicators can be considered modest. However, this cautious approach will help ensure that the government reaches the milestone or target in cases where, for instance, the number of beneficiaries of a scheme is uncertain. This is the case for measures that are expected to be implemented by the end of the Facility and whose content has not yet been decided, including in particular research projects under the green R&D component and projects under the digital strategy.

The verification mechanisms, data collection and responsibilities described in the plan appear sufficiently robust to justify the disbursement requests once the milestones and targets are completed.

Overall organisational arrangements

The Ministry of Finance will oversee coordination, monitoring and reporting on the implementation of the plan. It will, among other things:

- ensure compliance with EU regulations;
- monitor the full and timely fulfilment of the plan's strategic and operational objectives through milestones and targets;
- prepare and submit the requests for disbursement based on the necessary information from the competent authorities and reports to the Commission;

- ensure the evaluation of the results of the plan and the dissemination of outputs; and
- provide technical assistance to the competent authorities.

In addition, the Ministry's internal audit unit will be assigned the task of coordinating the audit systems and conducting controls on the line ministries' application of funds and fulfilment of milestones and targets. The Ministry will monitor the implementation of the plan and be responsible for the exchanges with the EU institutions; responsibility for implementation will be divided per components among the relevant ministries.

The arrangements proposed by Denmark in its recovery and resilience plan are expected to be the minimum to ensure effective monitoring and implementation of the plan, including the envisaged timetable, milestones and targets, and the related indicators. This warrants a rating of A under assessment criterion 2.8 in Annex V to the RRF Regulation.

4.9 Costing

Denmark has provided cost estimates for all investment measures in the plan. In most cases, no detailed costing estimates were associated with the reforms in the plan (such as the digital strategy) or very novel projects (mission-based R&D projects). The reforms and investments in the plan comply with the eligibility criteria set out in the Regulation. All measures are implemented after 1 February 2020 and the relevant actions relating to their implementation are expected to be carried out by 31 August 2026 at the latest. Value-added tax (VAT) is not part of the cost estimates for which funding from the RRF is requested.

The cost breakdown is well detailed. Estimates are for the most part based on comparisons with past investment schemes of a similar nature. The tables proposed in the standard template were duly completed and presented. The cost estimates were not validated by an independent public body such as a national productivity board or an independent fiscal institution.

The assessment of the cost estimates and the supporting documents demonstrates that most of the costs are well justified, reasonable and plausible.

Reasonable costs

Denmark provided detailed explanations to justify the reasonability of the cost estimates. The analysis of the supporting evidence is not consistent throughout the plan. The cost of the general tax measures (such as the deprecation schemes under the green tax reform and the R&D tax deduction scheme) were estimated by models. For measures where similar investment measures existed in the past, the cost estimates were clearly spelt out and it was possible clearly to identify the methodology used. In the case of reforms, novel measures or measures without similar past schemes, the cost estimates were less developed. Nevertheless, there is no evidence that would give rise to doubt as to the costing estimates provided.

In this context, it is deemed that the reasonability of the cost estimates is fairly well established.

Plausible costs

Denmark used reference costs (with adjustments where needed) to justify the plausibility of its cost estimates. The analysis of the supporting evidence is not consistent throughout the plan. Typically, for measures where similar investment measures existed in the past, historical or comparative data for the key cost drivers were provided. For novel projects without past precedent (such as mission-based R&D projects), Denmark argued that no comparative cost estimates can be provided.

Considering the limitations of an ex ante assessment of cost estimates, the amounts proposed for financing were deemed appropriate and the plausibility of the cost estimates is fairly well established.

No double EU funding

Double funding will be prevented by good governance and control systems. As the 2021-2027 Partnership Agreement is currently under negotiation, a proper delineation was not possible at this stage. Therefore, Denmark focused on establishing and describing the governance and control systems to prevent double funding (see below).

One of the main purposes of the control and audit arrangements is to ensure that no double funding will occur when the funds from the plan are disbursed to recipients. Each responsible implementing authority will issue new management declarations through which it will commit to document continuously that double funding is prevented and that all funds have been implemented according to relevant national and EU regulations.

To obtain knowledge of risk and specific assurance on the risk of double funding, the Department of the Office of Audit and Supervision (OAS) will perform three specific controls:

- check and compare with the Ministry of Finance officials responsible for the ministry's budget to ensure that the project in the relevant ministry receives funds from one EU source only;
- check against the annual Budget Bill whether the relevant ministry receives other EU – funds (which would indicate a risk of double-funding); and
- check on the basis of the annual report for each relevant ministry or agency, that funds are not received from any other sources, including sources other than EU funds.

The OAS will include a new paragraph in the ministry management declaration, whereby the management declares not to have received funding from other sources for the project in question.

In addition, to ensure sufficient controls on avoidance of double funding, Denmark committed to:

- conduct periodic cross-checks on a sample basis, using the data in Denmark's databases and ARACHNE, once Denmark starts using it;
- include in its risk assessment relevant to the strategy of cross-checks of avoidance of double funding the funds of all relevant ministries involved in the implementation of the RRP; and

- carry out checks on double funding at least once before each payment request.

At the grant recipient level, one of the application criteria is the absence of double funding. This will be a criterion when assessing applications for all funds under the plan and only projects respecting the rules on avoidance of double funding will be eligible for disbursements.

According to the Danish authorities, the central distribution will help ensure that the same applicant cannot receive double funding for the same project. Initiatives financed by both the RRF and additional funding (e.g. national or EU funds) will be disbursed at central level, with budget and appropriation authority in the Budget Bill and the disbursement of funds will be handled within the same responsible ministry and unit. In addition, the RRF funding will be registered as revenue in the Budget Bill for 2021 via a supplementary appropriation to be adopted by the Danish Parliament's Finance Committee, which will facilitate the separation of RRF funding from other funding.

Commensurate and cost-efficient costs

The plan is expected to effectively help address the challenges identified in the CSRs for Denmark. Furthermore, the reforms and investments in the plan are aligned with the 'flagship initiatives' of the 2021 annual sustainable growth strategy. More specifically, all seven flagship initiatives are addressed, albeit to varying degrees.

Moreover, the plan contains significant investments and reforms to accelerate the green transition. The measures will boost growth potential and productivity, stimulate job creation and mitigate the adverse effects of the crisis. The plan's clear R&D focus could support the achievement of Denmark's ambitious GHG reduction objectives, with potential positive spill-over effects (for instance CCS capacity could be used by other countries).

The justification provided by Denmark on the amount of the estimated total costs of the recovery and resilience plan is to a medium extent reasonable, plausible, in line with the principle of cost-efficiency and is commensurate with the expected national economic and social impact. Denmark provided sufficient information and evidence that the amount of the estimated cost of the reforms and investments of the recovery and resilience plan to be financed under the Facility is not covered by existing or planned Union financing. This warrants a rating of B under assessment criterion 2.9 in Annex V to the RRF Regulation.

4.10 Controls and audit

Description

The Danish arrangements will consist of two levels of control and audit: a central level, which is additional to the existing Danish control and audit mechanisms, and the existing decentralised level. The Ministry of Finance is responsible for coordinating and ensuring that the line ministries' audits and controls are sound and well-functioning with regard to the implementation of the plan. It will also serve as contact point for the Commission, EU audit institutions, the European Anti-Fraud Office (OLAF), etc. The Commission, the European Court of Auditors, OLAF and the European Public Prosecutor's Office will have access to all relevant data concerning control and audit. The Department of the Office of Audit and Supervision will ensure the high reliability of beneficiaries' data provision on milestones and targets and that the data is stored in accordance with relevant regulations.

Before each payment request, the Ministry of Finance will request and collect declarations from the management in each line ministry that receives funding from the RRF. The declarations will be signed at management level and sent to the Ministry of Finance by members of the management in each of the nine responsible line ministries (see Table 3.1). With the declarations, the management undertakes to comply with the RRF Regulation, in particular Article 22 on the protection of the Union's financial interests.

The Ministry of Finance will monitor and ensure that the ministries send the management declarations. After it has obtained sufficient assurance on the spending of funds, it will submit a single management declaration to the Commission on behalf of Denmark. The single management declaration will be based on the line ministries' declarations and the Ministry of Finance's own controls and supervision of the implementation of the funds.

Every ministry has a clear and legally binding responsibility to ensure appropriate audit and control systems. Furthermore, every ministry must design its financial accounts in a way that makes it possible to segregate the RRF funding from its other expenditure. This will be done in the supplementary financial act implementing the RRF, in the official state accounts and in the annual budget bill.

In addition, the National Audit Office may perform risk-based and random audits on the disbursement of RRF funds. However, it is an independent entity and itself responsible for deciding whether or not to carry out an audit. If it performs audits relating to the disbursement of RRF funds, the audit summaries will be provided to the Commission along with the biannual management declarations.

Robustness of internal control system and distribution of roles and responsibilities

The Danish plan presents the national organisational structure, with the roles and responsibilities of each actor clearly set out in the system for the implementation of the RRF. The Danish arrangements will consist of two levels of control and audit: a central level, which is additional to the existing Danish control and audit mechanisms, and the existing decentralised level. In addition, the control and audit system is comprised of the National Audit Office, the Danish Ombudsman, the Danish Data Protection Agency and the whistle-blower functions in all ministries.

The Ministry of Finance is responsible for coordinating and ensuring that the line ministries' audits and controls are sound and well-functioning with regard to the implementation of the RRP. Within the Ministry of Finance, the OAS will perform controls regarding both the ministries' application of funds and the documentation and fulfilment of targets and milestones. It will also coordinate the audit systems and supervise line ministries in their implementation, control and audit of the funds, thus providing additional assurance that implementing ministries' control systems are able to meet RRF requirements. The OAS will report biannually on the controls performed during the work with the management declaration. In the report, it will provide a summary of its controls on the implementing ministries' control and audit reports, and will therefore conduct the audits that that will feed into the summary of audits that will be sent to the Commission by the Ministry of Finance. Each ministry is responsible for ensuring sufficient audit and control on the completion of the milestones and targets. The ministries will have the flexibility to design the audits and controls individually. The National Audit Office (*Rigsrevisionen*) is responsible for conducting external audits on government expenditures and revenues.

The system presents a robust process and structure, where the roles and responsibilities are clearly defined and the relevant control functions are appropriately segregated.

Adequacy of control systems and other relevant arrangements

The plan sets out the procedures that are in place to ensure compliance with applicable EU and national law, throughout the implementation of all measures. Furthermore, it addresses all serious irregularities (fraud, corruption, conflict of interest) and avoidance of double-funding by allowing for controls and audits to be implemented also at line-ministry level. Each of the nine responsible line ministries involved in the implementation of the components will address a RRF management declaration to the OAS which will be performing controls and supervision.

When assigning funding from the RRF to relevant line ministries, it is a clear condition that the respective ministry implements funds according to the Union's criteria for implementation of funds from the RRF. Every ministry has a clear and legally binding responsibility to ensure appropriate audit and control systems in order to ensure that the funds are disbursed according to what has been approved by the Danish government and the Union.

The proposed measures give assurance that there is an adequate level of control to prevent, detect and correct irregularities identified when using RRF funds.

No specific risks to the individual components as a result of irregularities were identified.

The plan will be implemented and tracked using a system that is specific to each line ministry, whereby the information will be sent to the OAS. The data will be collected and stored by the individual ministries, and it will be the OAS' responsibility to collect and store the data on final recipients, as well as making it available to the Commission, OLAF and the Court of Auditors. The specific data that will be collected from the projects refer to final recipients/beneficiaries, contractors and subcontractors. The collection of these data will serve the purpose of obtaining knowledge of risks, specifically regarding 'concentration' and 'reputational' risks. The OAS will ensure that these data can be made available to the EU-authorities upon their request.

Adequacy of arrangements to avoid double EU funding

The Danish RRP takes account of funding from other EU funds and instruments in order to ensure complementarity and avoid double funding. This is done by supplementing the current rigorous Danish control systems with new management declarations whereby the management in each responsible implementing authority pledges to be able to always document that double funding is prevented and that all funds have been implemented according to relevant national and EU regulations.

Initiatives financed by both the RRF and additional funding (for instance national or EU funds) will receive disbursements issued at central level, with budget and appropriation authority in the Budget Bill. Denmark indicates that the central distribution ensures that the same applicant cannot receive double funding for the same project, as the disbursement of funds will be handled within the same responsible ministry and unit. Furthermore, every ministry has to design its financial accounts in a way that makes it possible to separate the RRF funding from other expenditure in the ministry. This will be done in the supplementary financial act implementing the RRF, in the official state accounts and in the annual budget bill.

To obtain knowledge of risk and specific assurance on the risk of double funding, the OAS will perform three specific controls:

(1) check and compare with the Ministry of Finance official responsible for the ministry's budget to ensure that the project in the relevant ministry receives funds from one EU fund only;
(2) check against the annual Budget Bill whether the relevant ministry receives other EU – funds (which would indicate a risk of double-funding); and
(3) check on the basis of the annual report for each relevant ministry or agency that funds are not received from any other sources, including sources other than EU funds.

The avoidance, detection and prevention of double-funding will be ensured at all stages of the projects' lifecycle. In this respect, Denmark committed to:

(1) OAS and the line ministries will conduct periodic cross-checks on a sample basis, using the data in Denmark's databases and ARACHNE, once Denmark starts using it;
(2) include in its risk assessment relevant to the strategy of cross-checks of avoidance of double funding of all relevant ministries involved in the implementation of the RRP; and
(3) carry out checks for double funding at least once before each payment request.

Legal empowerment and administrative capacity of control function

The OAS reports directly to the permanent secretary in the Ministry of Finance. It has an individual description of its role and functions, in which its special independent status is secured. The description of functions has been amended, in particular as regards the new mandate for controls on the use of RRF funds. That amendment is approved at government level. The government's economic committee has approved the extended mandate. The OAS currently consists of a chief auditor with 13 years of experience from internal audits in the Ministry of Finance. In addition, it has eight highly experienced employees, of whom four are specialised in auditing, two in cybersecurity, one in legal affairs and one in financial affairs. Each of the OAS employees has more than 15 years of experience. All employees are continuously trained and upskilled. The office will hire the number of additional employees needed to ensure proper and sufficient control of the RRF funds. The exact number of additional employees will be assessed continuously to ensure a sufficient workforce.

Roles and responsibilities of the actors for controls and audits are clear, relevant control functions are appropriately segregated and the independence of actors performing audits is ensured.

The arrangements proposed in the plan to prevent, detect and correct corruption, fraud and conflicts of interest when using RRF funds, including the arrangements and commitments relevant to the avoidance of double funding from the Facility and other EU programmes, are assessed as acceptable. This warrants a rating of A under assessment criterion 2.10 in Annex V to the RRF Regulation.

4.11 Coherence

Mutually reinforcing measures

The reforms and investments in the plan are consistent and mutually reinforcing. Each component is coherent in the sense that the measures therein reinforce each other. They often aim at achieving the same or complementary objectives. The reforms included in the components underpin and complement the planned investments. One example is the first phase of a uniform tax on GHG emissions in component 4, which is underpinned by an investment window to encourage companies to invest in climate-friendly assets and adapt to the second phase of the tax reform in the form of a uniform tax on GHG emissions.

The measures relating to the green tax reform form a framework for a number of other measures in the plan, thereby creating a coherent narrative. The measures in components 2 (agriculture), 3 (energy efficiency) and 5 (sustainable transport) constitute a coherent response to the challenges that Denmark faces in reaching its climate objectives. In particular, they are in line with the ambitious Climate Law target that Denmark has set itself. The measures in component 2 will help to reinforce GHG emission reductions in the agricultural sector. The component contains coherent measures that target the improvement of soil quality and decrease related pollution, which is one of the main environmental concerns for Denmark. The combination of measures can positively contribute to the green transition in the sector, subject to the long-term safeguarding of their results. Likewise, the reforms and investments in component 3 mutually reinforce GHG emission reductions in relevant sectors, while exploring new sources of CO2 emission reductions (CCS feasibility study). Finally, the measures in component 5 also make a coherent response to decarbonising transport by giving people incentives to commute by bike and move to zero- or low-emission vehicles.

The measures to strengthen the Danish healthcare system are coherent, as they all have the overall aim of increasing the resilience of the healthcare system from different angles.

Investments in digital solutions to access healthcare are cross-cutting and interconnected, allowing greater access to vulnerable populations, patient involvement and effective monitoring. Measures to ensure stocks of clinical drugs and monitoring of critical medical products contribute to overall planning and robust management of critical medical products. The measure on the effects of COVID-19 vaccines could improve the efficiency of vaccines and help minimise side effects, thus improving the overall health of the population and trust in vaccinations.

The measures dedicated to digitalising Denmark's society and economy aim to address coherent challenges and objectives. Although the Digital Partnership will decide the concrete measures at a later stage, it is clear that the different work streams to digitalise the economy and the public administration, and to provide workers with digital skills pursue complementary and mutually reinforcing aims. No cases have been observed of areas where the proposed measures contradict or negatively affect each other.

Complementarity of measures

The components embody the plan's consistent vision of leveraging the twin transitions in recovering from the crisis. Synergies can be found throughout the plan between different components, in particular as regards their objectives. Several components contribute to the objective of reducing GHG emissions and the measures therein complement each other. For instance, component 4 (green tax reform) contributes to the first phase of a green tax reform by introducing a uniform tax on GHG emissions. It is complemented by four other components with similar and reinforcing objectives, namely to help accelerate the green transition in Denmark. Component 2 (green transition of agriculture and environment) aims to reduce the carbon footprint from the agricultural sector. Component 3 (energy efficiency, green heating and CCS) aims to ensure energy efficiency and contribute to the Danish emissions reductions targets. Component 7 (green R&D) aims to increase investments in new green technologies as a complement to the existing and new policy tools for achieving carbon neutrality. Finally, component 5 (sustainable road transport) aims to reduce the emissions from the transport sector by 2.1 megatonnes by 2030.

In view of the challenges to be addressed, the Danish recovery and resilience plan constitutes a balanced approach between reforms and investments. In order to promote wider coherence across instruments, notably with the European cohesion policy funds, a balanced territorial allocation of resources is encouraged.

Taking into consideration the qualitative assessment of all the components of Denmark's recovery and resilience plan, their individual weight (importance, relevance, financial allocation) and their interactions, the plan contains measures for the implementation of reforms and public investments which, to a high extent, represent coherent actions. This warrants a rating of A under assessment criterion 2.11 in Annex V to the RRF Regulation.

5. ANNEX

			Climate[29]		Digital	
Measure/ Sub-Measure ID	**Measure/Sub-Measure Name**	**Budget (EUR m)**	**Int. Field**	**Coeff. %**	**Int. Field**	**Coeff. %**
1.2	Digital solutions in the health care sector	2			095	100%
2.1	Organic farming	11	027	100%		
2.2	Organic transition of public kitchens	5	027	100%		
2.3	Organic Innovation Centre	5	022	100%		
2.4	Plant based organic projects	3	027	100%		
2.5	Climate technologies in agriculture	27	022	100%		
2.6	Carbon rich soils	89	027	100%		
3.1	Replacing oil burners and gas furnaces	65	025bis	100%		
3.2	Energy efficiency in industry	40	024ter	100%		

[29] While the total cost of the Danish recovery and resilience plan exceeds the total allocation of non-repayable financial support to Denmark, Denmark will ensure that all spending related to the investments mentioned in this table as contributing to climate objectives are fully financed by the funds from the Recovery and Resilience Facility.

			Climate[29]		Digital	
Measure/ Sub-Measure ID	**Measure/Sub-Measure Name**	**Budget (EUR m)**	**Int. Field**	**Coeff. %**	**Int. Field**	**Coeff. %**
3.3	Energy renovations in public buildings	40	026bis	100%		
3.4	Energy efficiency in households	63	025bis	100%		
3.5	CCS-storage potential	27	022	100%		
4.1.1	Investment window – green share	163	027	100%		
4.1.2	Investment window – digital share	163			010bis	100%
4.2.1	Accelerated depreciation – green share	33	027	100%		
4.2.2	Accelerated depreciation – digital share	69			010	100%
4.3	Expert group to prepare proposals for a CO2e-tax	1	01	100%		
5.1	Re-prioritisation of the registration tax of vehicles and low electricity tax on charging electric vehicles	141	074	100%		
5.3	Development test of road-pricing	3	022	100%		
5.5	Analysis of test scheme with double trailers	0,1	022	100%		
5.6	Analysis of the regulation on weight and dimensions to optimise heavy haulage	0,1	022	100%		

			Climate[29]		Digital	
Measure/ Sub-Measure ID	**Measure/Sub-Measure Name**	**Budget (EUR m)**	**Int. Field**	**Coeff. %**	**Int. Field**	**Coeff. %**
5.7	Scheme to infrastructure for electric bicycles	1	075	100%		
5.8	Investments in bike paths in state roads and bicycle subsidy scheme for municipalities	70	075	100%		
5.9	Subsidy scheme to green ferries	27	074	100%		
6.1	Digital strategy	67			011	100%
6.2	Broadband pool	13			053	100%
6.3	SME's digital transition and export	9			010	100%
7.1.1	Incentives to boost R&D in companies – green share	15	022	100%		
7.1.2	Incentives to boost R&D in companies – digital share	59			009bis	100%
7.2	Research in green solutions	94	022	100%		